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BY PROFESSORS AND LECTURERS IN THE LEADING
MEDICAL COLLEGES OF THE UNITED STATES,
GERMANY, AUSTRIA, FRANCE, GREAT
BRITAIN, AND CANADA.

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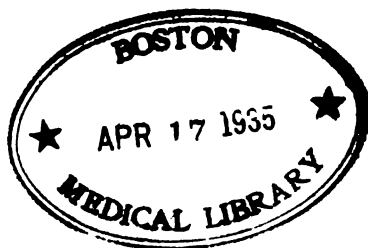
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Treatment.

EXPERIENCE WITH THE TREATMENT OF ENTERIC FEVER WITH COLD TUB-BATHS.¹

BY W. GILMAN THOMPSON, M.D.,

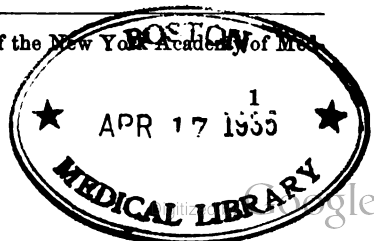
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I WILL confine my remarks this evening to a discussion of the effects of the treatment of enteric fever by means of cold tub-bathing, based upon a personal acquaintance with upward of two hundred and fifty cases, seen in the past five years in a former visiting service at the New York Hospital, and at the Presbyterian and Bellevue Hospitals, and, to some extent, in private practice.

There is nothing new in the treatment of enteric fever by cold baths, it having been practised in England by Currie a century ago, and advocated by Brand in Germany for nearly thirty-five years, yet in this country the method as employed by the latter clinician has not, until within quite recent years, received the attention it deserves, although almost every practitioner at times uses cold in some of its forms of application, either as a wet pack, the cold sponge-bath, Leiter coil, the bed-douche, etc.

In the majority of cases upon the study of which this article is based the treatment has been carried out in detail as follows: a large copper bath-tub is placed upon rollers at an elevation of one foot from the floor, a convenient height for the nurses who have to stoop over it, and not so high as to interfere with the easy transfer of the patient into and out of the water. The tub is filled from a neighboring faucet by means of a hose, through which the water is siphoned out again whenever it is desired to change it for a fresh supply,—practically after each half-dozen baths. A rubber cushion is placed in the bottom of the tub for the protection of the buttocks if needed. Sufficient water should be used to submerge the patient entirely with the exception of the head, which is supported upon a rest. The tub should be deep

¹ A paper read before the Section in Practice of the New York Academy of Medicine, October 20, 1896.



enough and wide enough to admit of readily turning the patient or of floating him over from side to side, so that different parts of the body may be rubbed in succession. The dimensions of the tub are, length, seven feet; width, twenty-four and a half inches; depth, eighteen inches; height above floor, one foot.

The patient, covered by a loin cloth, is lowered by two attendants into the water at 70° F. whenever his rectal temperature reaches 102.5° F., and is immersed for fifteen minutes, during which entire time he is vigorously rubbed by the nurses. A cloth wet with iced water is kept upon his head. He is then replaced upon the bed, which has meantime been prepared with a large rubber sheet, covered by a blanket. He is folded in a sheet, quickly rubbed dry, covered with a blanket, is given a glass of hot milk, gruel, or malted milk, and is finally left to rest, often to doze for an hour or two. In most cases it is desirable to give half an ounce of whiskey shortly before the bath. No other stimulants are given, and the mild cases do not require any at all. The patient's temperature may be taken immediately after the bath, but it is not necessary to do so for an hour, for it often continues falling during that time and longer. If at the expiration of three hours the temperature is again above 102.5° F., another bath is given. In severe cases patients are awakened and bathed at night at the same interval, although some discretion must be exercised to see that they do not become exhausted from lack of sleep, and it is sometimes better to omit a bath in the early morning hours, to allow a restless patient to gain sleep, which the dread of interruption may otherwise deprive him of. Patients naturally complain more of the baths given at this time of the day than of any others.

Great stress should be laid upon the importance of the rubbing, for reasons to be presently given. In fact, if the treatment were designated as that by "rubbing" as well as by "tubbing," it would be no exaggeration. The friction should be performed by two nurses, each using both hands. It must be continuous, but gentle; a broad quick sweep of the hand accomplishes the best results; too vigorous rubbing makes the skin too sore for future baths, especially if the chest or other parts of the body be hairy. When there is a thick long growth of such hair it may be cut short, otherwise the hair-follicles become reddened, swollen, and painful, if many baths are required. One attendant should rub the back and chest while the other rubs the legs, or the back, arms, and sides are to be rubbed in quick succession, the patient being turned occasionally from side to side to give access to all parts of the body. The abdomen should be rubbed but gently, if at all.

The object of the friction is primarily to apply a mechanical stimulus to the cutaneous surface over a large area, thereby reflexly stimulating the entire nervous system, and also the vaso-dilator nerves of the periphery, which allow of the determination of an increased supply of blood to the surface to be cooled by the water. Secondly, it diminishes the shivering and discomfort which constitute so pronounced a feature without it. Finally, as aptly said by a recent writer, it serves to pass the patient's time and divert his attention from the cold.

I am familiar with the older method of bathing by simply immersing the patient in cold water, or in warm water gradually cooled, leaving him in the tub until his temperature falls two or three degrees Fahrenheit. This method was practised during my hospital interne days in 1881-82, and the results so prejudiced me against all tub-bathing for enteric fever that I was at first extremely loath to use even the slightly modified Brand system as above described, but after seeing the excellent effects obtained by Dr. Peabody, who was among the first in this country to employ the Brand method systematically, I became so far converted as to prescribe it for others, and to insist upon taking the treatment myself when I had enteric fever several years ago. As I learned much in the tub as to the importance of rigidly carrying out the most minute details, I may perhaps be pardoned for alluding to my personal experience here.

The shivering is naturally the patient's chief complaint, and I found it became much lessened by taking the alcoholic stimulant long enough before the bath to admit of its absorption and diffusion through the circulation before the bath was given,—i.e., twenty or thirty minutes before entering the tub. If given immediately before, it is not absorbed in time to do good. Rubbing the back first, along the spinal column, lessens the feeling of cold. It is important to begin the rubbing the instant the patient is immersed. If one attendant leaves to prepare the bed or perform other duty, the patient's discomfort is at once increased. Again, no time should be lost in drying off the patient upon his removal from the bath.

It is desirable to have the temperature of the water accurately taken. It is surprising, when one tries it, to observe what a difference in discomfort is experienced in a bath only three or four degrees lower in temperature than the prescribed limit, for which one soon acquires tolerance. It is a matter of passing interest to note that the temperature of the water is usually elevated one degree during the bath. This is in part due to absorption of heat from the patient's body, and in part, no doubt, to the vigorous friction imparted to the water. When one

recollects that there are at least twenty cubic feet of water in the tub, it is evident that considerable kinetic energy is expended in raising this volume of fluid through one degree Fahrenheit.

Immediate quiet should be insured the patient after the bath. A noisy attendant fussing about the room seeking to restore order will prevent the sleep which often succeeds a bath, until the desire for it has passed. Patients usually wish to micturate very soon after leaving the tub, but I have never known of their doing so while in the bath, nor have I met with but a single instance of a patient defecating while there, and he was having involuntary evacuations. As a rule, much less alcoholic stimulation is required by patients undergoing the tubbing treatment than is commonly used.

The intelligent application of the cold tubbing treatment depends upon a proper conception of the theory of its use. It is in no wise curative in the sense in which medicinal remedies are employed, but acts through applying a strong double stimulus, mechanical and thermic, to the central nervous system, thereby better enabling it to withstand the depressing influence of the typhoid poison. We know that enteric fever is a disease caused by the absorption and distribution throughout the body of a toxin produced by the action of germs definitely localized within a comparatively small area. One of the most striking effects of this toxin is to cause an elevation of the body-temperature, but another equally dangerous effect is the depression of the central nervous system. Of all fevers enteric fever is pre-eminently characterized by such depression, as shown by the delirium, stupor, tremor, subsultus, asthenia, etc.

The cold plunge bath acts upon this fever in three ways: first, it not only reduces the temperature by abstraction of body heat, but secondly, by the suddenness of the shock of cold, and, thirdly, by the constant friction, it applies a stimulus to the nervous system, which enables it to withstand to a remarkable degree the advance of the disease. The influence of the baths upon the nervous system and directly and indirectly upon the patient's nutrition is of even more importance than mere reduction of temperature. There are many cases in which the latter effect is comparatively slight, the temperature not falling more than 0.5° or 1° F. after the bath, yet the delirium subsides, the patient's mental condition and digestion improve, tremor and subsultus disappear, the tongue becomes moist and clean, the pulse improves, the action of the bowels and of the urinary secretion become more nearly normal, while the strength and general nutrition are maintained in a manner which is surprising when this method of treatment is compared with the purely expectant plan.

The degree of reduction in temperature which the tub-baths produce varies greatly as observed by the clinical thermometer. I have often found continued benefit from them in patients having temperatures above 104° F., which did not fall more than 0.5° or 1° F. after bathing, quite as much benefit indeed as in those whose temperatures fluctuated three or more degrees as a result of the baths. The average reduction in temperature from a single bath is 2° or 2.5° F., but the reduction may amount to 3.5° or even 4° F. A careful comparison with the results of cold sponging shows an average difference of from 1° to 1.5° F. in favor of the tubbing.

When regarded in the light of a stimulus to the nervous system the tubbing treatment seems a rational one, but its limitations should be kept clearly in mind. It of course can neutralize none of the toxin, nor does it aid in its elimination, except possibly quite indirectly by remote effect upon the kidneys. It does not reach the deeply-seated ulcers and can only influence them indirectly through maintenance of better general nutrition. It does not cut short the disease nor does it prevent relapses in many cases. On the other hand, it does not interfere with the simultaneous employment of any other treatment, such as that by laxatives and intestinal antiseptics, although no treatment other than bathing and dieting was used in any of the cases upon which this discussion is based. What it does do emphatically is, keep the patient's mind clear, the tongue moist, and the digestive organs in a normal condition. Bed-sores are quite unknown. Previously existing bronchitis and delirium frequently disappear after a few baths. Tympanites becomes a rarity. Throughout the entire conduct of the case one feels that something definite and rational is being done for the patient, and one almost never sees in those who come early under treatment, within the first week or even ten days of illness, the typical typhoid condition of Louis,—the low, muttering delirium, the parched, fissured tongue making articulation and deglutition difficult or impossible, the subsultus, involuntary evacuations, rapidly progressing emaciation, complete asthenia, etc.

As an illustration of the possible influence of the baths in preventing this deplorable condition, I will briefly refer to but a single case.

The patient, a man thirty-five years of age, was treated at the New York Hospital, in 1892. He was admitted in the first week of the disease, but was evidently strongly infected, as his temperature was 104.5° F. at that time and his general condition was poor. He was discharged cured on the seventieth day, having had a recrudescence and two relapses, the second relapse lasting nearly three weeks. He

had several crops of typical spots. A history of nosebleed, headache, and muscular pains was obtained on admission. During the third week his temperature rose as high as 108.4° F. on two successive days, and upon two other days it reached 105° F. The bathing reduced the temperature sometimes as much as 4° F., and I gave the man in all one hundred and thirteen baths. There was no tremor and no subsultus. At no time during the disease, even during the phenomenal hyperpyrexia, was the patient delirious. His mind remained perfectly clear throughout, and the baths usually reduced the pulse-rate from ten to twenty or more beats, and during the highest temperature range the urine increased from forty-four to eighty-three ounces *per diem* within four days. No complications beyond the hyperpyrexia were observed.

I do not believe that under any other treatment the patient could have survived such a long-continued and remarkably high temperature. The digestion and nutrition were excellent throughout.

When I first undertook the Brand method of treatment, I hesitated to apply it in many cases in which severe complications already existed, especially intestinal hemorrhage, and also in cases complicated by pregnancy or intercurrent menstruation, but the only complications which in the light of further experience seem to me to forbid its use are severe lobar pneumonia, cardiac failure, intestinal perforation, and hemorrhage. With regard to the latter, however, it is quite safe and desirable to resume the baths after hemorrhage, provided this symptom has ceased and the patient has had at least one normal stool. I have used the treatment in successful cases in each month of pregnancy up to the sixth, and I have never seen any ill effects whatever follow bathing women during their menstruation.

I shall not insist upon any comparative mortality statistics. I will give but few figures, and in doing so must protest against their being possibly misjudged. Nothing is more fallacious than mortality data hastily compiled from some new method of treatment of, say, one or two hundred cases of such a disease as enteric fever. When the cases reach the thousands it is another matter, but every one who has seen much of this disease knows how its severity varies from year to year, and knows how many mild cases recover without treatment of any description beyond a fluid diet and an occasional sponge-bath. As seen in the hospitals in this city, thirty or forty cases may often run their course without a death, to be followed the next month by half a dozen fatal cases. One autumn the disease will be largely characterized by excessive fatality from intestinal hemorrhage, and the next,

perhaps by its absence, but by the greater prevalence of catarrhal complications, pneumonia, bronchitis, otitis, etc. Moreover, the fever varies greatly in its characteristics and severity in different localities in this country. This fact has been admirably demonstrated by Dr. W. W. Johnston, of Washington, in a paper¹ read a few years ago before the Association of American Physicians, in which he summarized the data received in answer to questions directed to three hundred and fifty physicians along our Atlantic and Gulf seaboard, showing the great variation in type of the disease as it prevails in the coast States. It is well known how much milder enteric fever usually is in such cities as Denver, or Cheyenne, and in fact in many of the States west of the Mississippi.

We do not get so great a reduction in this country as is claimed in Germany and France for the Brand system. It is true that many of the foreign statistics are derived from army hospital experience where patients come early under treatment, whereas in our metropolitan hospitals the majority of patients, coming from the tenement-house class, do not seek hospital treatment until they are seriously ill, often towards the end of the second or third week of the disease, and they have been very poorly cared for. However, such statistics as have been already published in this country upon a fairly large scale are very gratifying to adherents of the Brand system. Osler gives the recent mortality of enteric fever at the Johns Hopkins Hospital treated by the cold tubbing system as 7.1 per cent., and Wilson² has lately reported five hundred and twenty-four cases similarly treated at the German Hospital in Philadelphia, up to January 1, 1896, with only thirty-eight deaths, a mortality of 7.25 per cent. Among a series of eighty-nine cases treated at that institution from January 1, 1895, to January 1, 1896, but a single death occurred, whereas prior to the introduction of this treatment the mortality was 18.5 per cent.; forty-eight cases which I reported³ prior to January 1, 1892, treated mainly at the New York Hospital, had a mortality of 6.5 per cent. As I have said, such a small number of cases are not very impressive by themselves, but I add them to the accumulating reports of others. It was, I believe, Charles Lamb who remarked upon unexpectedly finding a small fish in the milk-can that there are some facts which need not be multiplied to be convincing, and to my mind a visit to a hospital ward containing a

¹ W. W. Johnston: On the Geographical Distribution of Typhoid Fever in the United States, *Trans. Assoc. Amer. Phys.*, 1888, p. 8 *et seq.*

² Wilson on Enteric Fever, in the *Amer. System of Med.*, vol. i. p. 229.

³ *INTERNATIONAL CLINICS*, January, 1892.

dozen or more cases of enteric fever all under the Brand system of treatment is far more convincing than hundreds of figures, with the added uncertainty of the selection of cases and varying types in the disease.

At the Presbyterian Hospital where I introduced the tubbing treatment in 1892, two hundred and thirty-four cases of enteric fever have been received in the four years since that date, with a total mortality under all forms of treatment of 14.79 per cent. Owing to the fact that these patients were treated by several different visiting physicians, as well as owing to other circumstances, but one hundred and ninety-three of them received cold tub-baths as above described. Among this class, moreover, were included many practically hopeless cases, so that the death-rate among them all is nearly as great as the general death-rate for all cases admitted. One great objection made by the opponents of the treatment under discussion is that the published data are derived from selected cases. I see no other way to get at the root of the matter in justice to both sides. A patient is brought by the ambulance into the hospital at the end of the third week of the disease, moribund, with a temperature of 107° F. He is given two tub-baths in the faint hope of saving him, but dies within eighteen hours. Surely it is more misleading to record such a case among the mortality statistics of those treated by the Brand system, the Woodbridge system, or any other system, than to leave it out of count altogether. Even cold bathing works no miracles. Another patient is received comatose, with the history of having had several hemorrhages a few days before, or still another is received with extensive lobar pneumonia as a complication, and a temperature of 105.2° F. Both are bathed, but with no improvement, and death shortly follows. Are such cases to be included in "tubbing" mortality statistics? If so, it must be frankly admitted that the death-rate under this treatment at the Presbyterian Hospital has not been lowered more than one-fourth of one per cent. But if the moribund cases and those which had hemorrhage or pneumonia before admission be deducted, then the hospital mortality corresponds with that now generally reported in this country,—i.e., between seven and eight per cent. for the cold tubbing treatment. A series of sixty-three *unselected* cases lately treated there gave a mortality of 7.75 per cent. Only one of them was received during the first week of the disease. As opposed to this may be cited the mortality of the two hundred and fifty cases treated by all other methods at this hospital from 1882 to 1890, which was 16.1 per cent.

A word must be said in regard to the objections which have been advanced against the Brand bathing. They have been largely based

upon theoretical grounds, and have come in great part from those who have either had no practical experience with it, or who have tried it in a few unfavorable cases, and not finding it a "cure," have abandoned its use.

1. The tubbing is objected to as cruel, even barbarous. It is certainly extremely uncomfortable to be taken from a warm bed under any circumstances of ill health and suddenly plunged into cold water, but the treatment has its compensations, for if the muscular fever pains are severe, they are almost entirely relieved, for an hour or two at least, after the bath. The patient also feels less languid, and as if a tonic had been administered, and recognizes the improvement in appetite and digestion which often follows. Most patients, indeed, become so used to the bathing after a half-dozen tubbings that they object to it but little. I have not among two hundred and fifty cases been obliged to discontinue the baths more than four times on account of the serious objection of the patient, and in each instance the patient was a highly neurotic subject, objecting systematically to everything done, and offering even more resistance to the sponge bath or Leiter coil. If the patient is a very nervous subject the initial bath may be given at 85° or even 90° F., and a little tact and persuasion will usually enable the treatment to be continued at 70° or 75° F., without further trouble. I have often asked patients during convalescence how they regarded the treatment, and have been almost uniformly told, even if they did not claim to enjoy it, that they realized its benefits at the time, and found it by no means cruel or intolerable. Upon more than one occasion patients have asked to be tubbed more often, and I have once or twice known them voluntarily to jump into the tub when the nurse's back was momentarily turned. I have, since being asked to read this paper, questioned ten intelligent patients particularly in regard to this matter, one of them being himself a physician, a well-known member of this Section of the Academy. They had all been given alcohol sponge-baths, while their temperature was a little below 102.5° F., and tub-baths whenever it exceeded that limit. All but one declared quite positively that they had on the whole found the tubbing no worse than the sponging, while several distinctly preferred the former. One, however, objected decidedly to both.

The shivering, which from the patient's stand-point is undoubtedly the greatest drawback to the treatment, is by no means always so bad from the subjective as it appears from the objective point of view. It may commence in the tub and may last for fifteen minutes or even half an hour after the patient's removal. It is usually controlled by a

hot drink of some sort, prompt and thorough drying of the body, and if necessary, hot water bottles applied to the feet. Should these measures fail, a small hypodermic injection of morphine, given fifteen minutes before the bath, or a dose of the aromatic spirits of ammonia or of chloroform mixture after the bath, will control the shivering. Nitro-glycerin has been employed for the same purpose. It is often prevented by reducing the duration of the baths for a time from fifteen minutes to ten. Many patients who shiver considerably in their first few baths subsequently acquire tolerance and suffer much less from this uncomfortable feeling.

2. It has been objected upon purely theoretical grounds that the cold bath would drive the blood from the periphery to produce visceral engorgement and increase the liability to hemorrhage. This objection is not sustained by the facts, and when the friction is properly applied and maintained the peripheral vessels are kept dilated, as shown by the ruddy redness of the surface of the body while in the water.

3. It is objected that relapses are more common among patients who are bathed than among those who are not. Relapses occurred in twenty-six of the series of one hundred and ninety-three patients tubbed at the Presbyterian Hospital, or about 13.5 per cent. This is a large percentage of relapses; in fact, two per cent. larger than the proportion when estimated for the total number of two hundred and eighty-four cases treated at that institution by all methods during the same period of time. However, many of the patients who were not bathed died during the disease and obviously could not relapse. It is, therefore, again somewhat misleading to quote data in that matter, but the fact remains that very many of the bathed cases do have mild relapses. Death from relapse in enteric fever is comparatively infrequent at any time, and it is certainly preferable to run that small risk if the disease can be rendered milder throughout by treatment.

4. Another much less serious objection has been made upon the ground that the cold water is supposed to induce the complication of neuritis. I have quite as often seen that occur in patients not bathed as among those who were, and in any event it is usually of brief duration and not of vital import.

5. The tubbing is objected to because of the labor and expense involved. My own baths, taken at home, I estimated cost two dollars and fifty cents each, including the expense of a portable tub and the additional nurses required by the treatment. In hospital service a bath cannot be completed inside of half an hour, including the time

spent in preparing the water and the bed, drying the patient, etc. For these purposes, at least, three nurses or orderlies are usually employed, two mainly for rubbing and lifting and one for other details. This is equivalent to the work of one person for an hour and a half per bath, and a patient receiving eight baths in twenty-four hours would thus require the equivalent of twelve hours' continuous work, or a hard day's labor. The expense, therefore, practically amounts to the hospital having to supply that labor, or so much of it as would not be necessitated by the ordinary care of the patient. As the nurses are paid little or nothing and the orderlies receive small wages, the expense to the institution is not so great as might at first appear. As the rubbing and lifting of many patients is exceedingly fatiguing labor, it is the custom in some institutions to employ outside assistance to perform that work alone and relieve the regular nurses somewhat.

One of the patients referred to in this article received one hundred and twenty-seven baths, and another one hundred and twenty-four. I have given even more in severe and protracted cases, although ordinarily not over from fifteen to twenty or twenty-five baths are required for one case. To give one hundred and twenty-seven baths at the above estimate would consume 190.5 hours of labor, or nearly sixteen days of twelve hours each of continuous work. This is truly an arduous undertaking, but a typhoid-fever patient should have at least two good nurses for day and night work, no matter what treatment is employed; and in private practice the additional mechanical labor demanded for tubbing can be in part supplied by less expensive helpers, provided they are properly supervised.

The question of expense must in any case be compared with the results attainable. If it can be shown that in a given instance a man's chances of recovery are increased from between eighty-two and eighty-six per cent. to ninety-three per cent., but few would hesitate over the investment, even in hard times. The accumulating data of experience in many countries make this opportunity no longer a chance but a certainty in cases brought under treatment before the eighth or even the tenth day of illness.

CONCLUSIONS.

The conclusions derived from the observation of the foregoing cases are summarized as follows:

1. Cold tub-bathing does not ordinarily shorten the duration of enteric fever.
2. It does not prevent the occurrence of at least as many relapses as may take place without it.

3. It does not prevent the occurrence of many of the ordinary complications of the disease, most of which, however, are much less severe than those that are often present without it.

4. It does not in any manner preclude the simultaneous use of the intestinal antiseptic or any other recognized method of treatment.

5. It may be safely employed in all cases excepting those actually having intestinal hemorrhage or severe pneumonia at the time, not even early pregnancy or intercurrent menstruation being contraindications for its use.

6. It is a rational plan of treatment directed towards the support of the nervous system by the double stimulus of cutaneous friction and shock of sudden cold, and as such it is particularly useful in preventing those symptoms which result from the overwhelming of the nervous system by the toxin of the disease. Furthermore, it so regulates the metabolic processes of the body as to increase its resistance to the inroads of fever, and less alcoholic stimulation is required than is often given in other methods of treatment.

7. When patients come under the tubbing treatment within the first week of illness, it offers the almost certain prospect of the disease running a mild course, free from the graver complications common under expectant and other treatment, and it reduces the mortality of many of the severer cases by approximately one-half.

The most striking features which are so often commented upon by those visiting an enteric fever ward where a series of patients are under the tubbing treatment are their remarkably good facies, mental condition, and nutrition. Surely it is a decided gain to be able to accomplish these results for the patient, if nothing more, in so complex and protracted a disease, and when, in addition, a substantial reduction in mortality is obtainable, the benefits must outweigh the objections and disagreeable features, at least until some better method, perhaps an ideal intestinal antiseptic or an immunizing serum, is discovered.

PAROXYSMAL DYSPEPSIA, WITH ESPECIAL REFERENCE TO TREATMENT.

CLINICAL LECTURE DELIVERED AT THE LONDON HOSPITAL.

BY ARTHUR ERNEST SANSOM, M.D., F.R.C.P.,

Physician to the London Hospital, etc.

GENTLEMEN,—I wish to call your attention to some cases of dyspepsia. To many the first thought will probably be that these will be uninteresting cases. There is something of sensationalism in the dyspepsia which occurs in association with signs of gastric ulcer, or of well-marked disease of the liver, or its ducts, or of growths within the abdomen. Your interest, however, seems to flag when one of the many cases of out-patients presents itself with symptoms of indigestion, which you designate “functional.” The matter, however, has a very different aspect to the sufferer, and such sufferers constitute a very large proportion of those you are and will be called upon to treat. He or she will obtain small comfort if you say that the symptoms have no organic cause, and that you have insufficient indications for the treatment.

In the group of cases which I am about to consider I do not think you will find that much good results from the ordinary plans of treatment for indigestion; purgatives often make matters worse, rhubarb and soda bring contempt with them, bitter tonics do nothing but excite wrath and indignation. The reason for the failure of these means is, according to my opinion, that the chief cause of the disorder is ignored, the subsidiary conditions are erroneously placed as the primary, the *fons et origo* is in the nervous system, and the consequence only in the viscera and organs that it dominates and regulates.

I will briefly give the notes of some cases, with a commentary upon them.

CASE I.—A man, aged twenty-four, came under my care in September, 1894. He had been a typical athlete, of fine muscular development. He told me he had suffered periodically from “bilious attacks”

for years. On cross-examination, I found that these occurred at intervals of about six or twelve months. The attacks began with epigastric pain and tenderness; then vomiting ensued; the bowels were constipated, and there was complete disinclination for food.

In 1890-91 the patient suffered from influenza. In July, 1893, a very severe attack occurred, which lasted three days; another was experienced in October, again in January, 1894, and in April, what the patient described as threatened attacks were experienced on several occasions. There had been no jaundice at any time. It was thought that aperients gave some immediate relief, but the patient became worse and weaker. There was progressive loss of weight from one hundred and ninety pounds to one hundred and forty-three pounds. The physical signs in regard to the heart and lungs were normal, the pulse-rate 76, the volume and tension of the arteries being rather below par. The urine, of which only a small quantity was passed, contained a slight amount of albumen, but there was no deposit. Except for the attacks, the dyspepsia, the wasting, and the enfeeblement, there was no evidence of disease. In regard to hereditary tendency, the mother, it was said, died of diabetes at the age of sixty-nine; the father died of acute pneumonia at the age of seventy-four. There was no tendency on the part of the patient to alcoholic excess; there might be some irregularity in the diet, but during the intervals between the attacks (previous to the recent ones) the patient felt well and strong, and did a considerable amount of muscular work.

The treatment adopted was the administration of pure, pale, cod-liver oil, two drachms, with pancreatin, after carefully-regulated meals, three times a day, and a cachet containing eight grains of phenacetin, to be taken at the very beginning of any pain or discomfort, and repeated in two hours, if necessary.

Much improvement followed. In three weeks the patient gained two and a half pounds; at any threatening the pain was at once relieved by the cachets. The urine of specific gravity 1018 contained no albumen. In October an attack occurred, but not so severe as formerly. The specific gravity of the urine rose to 1030, but there was no albumen nor sugar present. The actions of the bowels became irregular and were with difficulty co-ordinated by aperients. The aspect of the case changed. The abdominal pains and obvious discomforts of indigestion gave place to migraine, commencing in the occipital region and shooting to the parietal. The urine of a specific gravity of 1028 again showed traces of albumen. Treatment by the cachets was still persisted in (the cod-liver oil and pancreatin being omitted), and

in addition sodium bromide in fifteen-grain doses three times a day was prescribed. Then there was a serious but, perhaps, on the whole, a salutary diversion,—an attack of typhoid fever. Of course this rendered necessary a very prolonged rest, and the apparatus of digestion worked perfunctorily at extremely low pressure. There ensued gradually a good recovery. Muscular strength and good muscular development returned. No indigestion storm occurred until September, 1895, when it was well controlled by treatment. The weight had risen to one hundred and eighty-two pounds. I have reason to believe that there is very fair health now.

It will be sufficient for our purpose if I sum up the salient features of this case in a few sentences. A young man of splendid physique, during adolescence and early maturity, suffers periodically from severe attacks of indigestion. He is not a chronic dyspeptic and shows no signs of organic disease. In the intervals between the attacks he is well and strong. He can point to no determining cause for the attacks. He becomes infected by influenza. There is no notable change in him for two years after, but then his attacks become greatly aggravated and his condition serious. He improves, and a change comes over the picture; the storms of indigestion are replaced by attacks of severe headache,—storms of migraine. He is laid low by typhoid fever, but subsequently his condition becomes better and not worse. You will note that the periodic outbursts of indigestion were not *produced* by influenza: they existed long before the infection, but this disease *may have acted as an aggravating cause*. The implication of the nervous system is indicated by (a) the intermittency and periodicity of the attacks, (b) the painful and distressing symptoms unassociated with visceral disease, (c) the interchange with migraine. We will now consider some other cases.

CASE II.—A man, aged forty-six, came under my care in March, 1892. He complained of (as he said) severe indigestion, with sinking and soreness in the abdomen and pain in the back. He had until recently suffered from no febrile ailment, and his family history was negative as to hereditary disease. For several years at irregular intervals he had suffered from attacks of “biliousness,” characterized by abdominal pain, lasting from an hour to an hour and a half, then vomiting, and then very irregular actions of the bowels. Two or three weeks before he came under my notice he had suffered from a slight attack of influenza. I found on physical examination that the liver was somewhat enlarged. A tender spot existed to the right of the ensiform cartilage. There was no jaundice. The outline of the

heart was normal, but there was a very *marked irregularity of the cardiac action*, a strong ventricular systole, followed by two or three weak ones. The pulses which were manifested in the radial artery were only 40 to 56 per minute. At first a mixture of ammonia and ether was prescribed and systematic frictions of the skin enjoined. The following briefly expresses the course of the symptoms. Severe pain referred to the vertex and to the left shoulder, vertigo, numbness, and tingling in both hands (equally). Then severe headaches every day for four days, the suffering being chiefly occipital, the maximum in the early morning, great flatulence following. In May there was a recurrence of the indigestion storms, with nausea and vomiting. The patient was intolerant of food though carefully dieted. He says that simple milk puddings do not agree with him. Heart's action improved; pulse 80 per minute, occasionally intermittent, but not the old form of extreme irregularity. Sodium bromide, thirty grains daily, in divided doses, was now prescribed, and the painful symptoms became much relieved, though there were occasional outbursts of flatulence. After a period of improvement there was a return of daily headaches, with abdominal discomfort in April, 1894. Then phenacetin gave much relief, and gradually a fair state of health was restored.

This case presents many close resemblances with the one previously recorded, and some differences. For a long period of the patient's life there had been periodic, paroxysmal attacks of indigestion. Then came an attack of influenza, after which there was an aggravation of the symptoms. As in the first case, the storms of indigestion were interchanged with storms of migraine. Unlike the former, this patient did not waste; the conditions of nutrition were adequate, though the sufferings were very severe. The chief differentiating feature in Case II. was the irregularity of the action of the heart. This was, during the first periods of observation, of a very extreme character, yet there was no evidence of organic disease of the heart. The irregularity gradually became less manifest, and later observation showed it to be practically *nil*.

We will obtain further evidence from—

CASE III.—A lady, aged thirty-eight, came under my observation in November, 1892. She complained of what she called nervous feelings. She had been nervous all her life. She suffered from attacks of indigestion, with "bad-egg taste" in the mouth, extreme depression, diarrhoea, followed by constipation and severe palpitation of the heart. She also had been infected by influenza two years previously, and all her symptoms had been aggravated since. Chief of these was the pal-

pititation of the heart; attacks of palpitation occurred most frequently at night, and were followed by shiverings and sleeplessness. In the daytime peculiar nervous feelings accompanied the palpitations, with tremors, chiefly affecting the lower limbs.

In this case also there were alternations with migraine, the headache being chiefly frontal. Previously to the headache there were, on some occasions, signs of defective equilibration, swaying, and "walking sideways," as the patient expressed it. With regard to family predisposition, the father died of apoplexy, the mother of phthisis pulmonalis; no other notable history. The treatment at the first was by twenty-grain doses of bromide of sodium administered every four hours. The patient found that, though the tendency to palpitation became very little influenced, the disturbed cardiac action was attended by less pain and discomfort, and so there was less insomnia. The crises of indigestion were very severe, and, at intervals, ten minims of laudanum were added to the bromide mixture. Later, a mixture of sodium bicarbonate with two-minim doses of Fowler's arsenical solution was prescribed to be taken three times a day after meals, and a solution of pancreatin with the meals. The bowels were kept in regular working order by cascara. There was very much improvement, though slight attacks occurred at intervals.

In this case, as in the others, there were paroxysmal attacks of indigestion, greatly aggravated since infection with influenza. In this instance there were cardiac symptoms,—not irregularity, as in Case II., but abnormal rapidity (tachycardia) in the form of palpitations with subjective discomfort and associated tremors. There was also an alternation with migraine.

If we ask ourselves, What is the nature of the malady of which the foregoing cases are samples? It seems to me that the answer must be, A disturbance of the nervous system. Then, if we inquire further as to the precise portion of this wide area that is involved, the reply is that it can be no other than the tract subserved by the vagus,—the pneumogastric nerve.

In the first case the area chiefly or solely affected was that to which the gastric branches and those controlling the digestive mechanism are distributed. The epigastric pain and tenderness suggests possibly an abnormal condition of the solar plexus, the vomiting an affection of the vagus nerve itself. Gowers has noted paroxysmal vomiting to result from the intermitting pressure of a tumor on the vagus, and "Boinet, having exposed the vagus in an operation in the neck, noted that whenever he touched the nerve the patient vomited." (Quain's Dic-

tionary, vol. ii. p. 488.) The wasting could be regarded as the result of the perversion of the functions of the viscera subserved by the nerve-force of the vagus as well as of the trophic influences of the nerve itself. The attacks of indigestion were replaced by those of migraine. The symptoms of the former were not those of the latter, —they differed widely,—but yet it would seem probable that there was an intimate relationship between them and almost a community of cause. Dr. Edward Liveing has defined an attack of migraine as “a nerve-storm traversing more or less of the sensory tract from the optic thalami to the ganglia of the vagus, or else radiating in the same tract from a focus in the neighborhood of the quadrigeminal bodies.” In our first case there was no disturbance of the rhythm of the heart. In Case III., in addition to the storms involving the digestive nervous mechanism, the heart reflex was affected in the sense of abnormal acceleration. This is the most common disturbance of the heart due to nerve-causes. A neuritis of the vagus, whereby the normal functions of its fibres are impeded or abolished, is attended by an abnormal frequency of the heart's pulsations. Such a form of neuritis occurs from various causes. I have observed it especially in those who having manifested signs of alcoholic polyneuritis became infected with influenza. (Cf. *Medico-Chirurgical Transactions*, 1894, p. 298, and *Medical Press and Circular*, June 3, 1896, p. 571.) But paroxysmal tachycardia can be produced without there being any structural change in the nerve. Palpitations can result from emotional influences. “The central connections of the vagus, in the hemispheres, extend to, or are connected with, those parts which are concerned in emotion, and it is probably through the agency of this nerve that the heart's action is affected in excitement and fear.” (Gowers.)

In Case II., in the association with paroxysmal dyspepsia, there was not abnormal rapidity, but irregularity of the heart's action. This is a symptom of disturbance of the vagus nerve, but not necessarily of impairment of its powers; the lesion may be irritative. An excitation of the vagus brings about irregularity of the heart by weakening the contraction of the auricles. Thus the rhythmic stimuli reaching the ventricles from the auricles are diminished or suppressed, and the ventricles tend to take on a rhythm of their own. In extreme cardiac irregularity in the dog the vagus influence has been shown to have been annihilated,—the muscular walls and the papillary muscles of the heart then fail to act in any correlation. (Roy and Adami.) Irregularity of the heart, therefore, may be due to overaction of the vagus or to suppression of its functional activity.

I think that we may look upon the cases I have narrated as manifesting nerve-storms, in the area of origin, or in the course of the pneumogastric nerves,—or in certain portions of such area and course. As to the predisposing factors, there are first the hereditary influences. Migraine is undoubtedly hereditary. So, probably, is this nervous form of dyspepsia. Secondly, there are emotional influences which can either be cultivated or kept down in some cases. Lastly, there are the vestiges of acute disease. As to influenza, I feel sure that it may cause neuritis of the vagus as it does often of peripheral sensori-motor nerves. Probably other infective or endemic disease may do the same. Autogenetic poisons, the results of chill or of excessive muscular exercise,—or the gouty poison, whatever it is,—may produce like effects. Alcohol we know may produce a neuritis of the vagus. If these latter influences do not produce the symptoms we have been discussing, at any rate they may act the part of concurring and aggravating causes. A patient who is liable to attacks of paroxysmal dyspepsia may have these attacks rendered more frequent, more grave, and more distressing if the infective agency of influenza comes in.

Now as to the treatment. In the stage of an acute paroxysm, the first essential is rest. The patient should be provided with a prescription which can give relief at the very beginning of an attack, at the slightest warning that a paroxysm is impending. In many cases I have found nothing better, certainly nothing so innocuous, as phenacetin. I generally prescribe a wafer cachet containing eight grains of phenacetin and one grain of camphor. This cachet is to be swallowed, after having been moistened by a mouthful of water, directly epigastric discomfort is experienced. If the symptoms are unrelieved in half an hour, a second cachet is to be taken.

In some cases antipyrin in fifteen-grain doses, dissolved in water, is more effectual than phenacetin. If either of these drugs control the symptoms, they produce a good moral effect upon the patient. He feels that he has a trustworthy remedy at hand, and he succeeds in reducing an intolerable discomfort to the limits of a moderate dyspepsia.

In some cases, however, the suffering is too severe to be influenced by these drugs,—then some preparation of opium must be administered. One grain of opium with ten grains of the carbonate of bismuth may be given and repeated in two hours, if necessary, or the equivalent of these drugs may be given in solution.

The diet must be of the simplest. Barley-water merely may be sipped during the early stages of an attack,—ice in moderation may be administered therewith. If an alcoholic stimulant be given, it

should be good old cognac, one teaspoonful in a tablespoonful of milk, —a little aerated water therewith, if so preferred. Careful dieting may be necessary long after the attack, for effects long outlive causes. Yet it is a mistake to push rigid dieting too far. When the vestiges of the attack have ceased to be manifested, when the tongue has become clean, and the patient craves for some variety in his food, his meals may be nearly those of others. He is not to be treated as a chronic dyspeptic. For, if a reasonable omnivorousness be not permitted, there may develop an unreasonable valetudinarianism.

A valuable agent for treatment for a considerable period after the attack is bromide of sodium. It tends to calm the perturbations, digestive and cardiac. It should be given in fifteen- or twenty-grain doses, in an agreeable mixture, three times a day. I think the sodium salt depresses less than the potassium, but the administration should be interrupted if there seems to be any lowering effect, and, of course, if there be any bromide eruption. Lowness of spirits, great mental depression may be quite independent of medicinal treatment in these cases. It is a symptom often inherent in the disease; any disturbance of the vagus may be accompanied by ill-defined fears, by melancholy thoughts and apprehensions. It often happens that the treatment by the bromides tends to remove these symptoms. Yet they must not be continued too long. In the later stages of treatment, they may be replaced by small doses of arsenic (three to five minims of Fowler's solution) in an alkaline mixture three times a day after food.

THE DIAGNOSIS AND TREATMENT OF HABITUAL CONSTIPATION.

CLINICAL LECTURE DELIVERED BEFORE A POST-GRADUATE CLASS.

BY TH. ROSENHEIM, M.D.,

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GENTLEMEN,—Constipation not being itself a disease, but merely a symptom common to a number of affections, it would be just as irrational to lay down a wholesale plan for its treatment as to try and devise a universal remedy for vomiting or fever. If you wish to obtain more than mere temporary relief you must in such a case trace your patient's constipation to its particular cause, so as to enable you to remove the root of the trouble. The cause removed, the effect is bound to disappear as a matter of course.

All cases of chronic constipation may be roughly ranged under one of three heads.

In the first place, they may be owing to some mechanical impediment interfering with the progression of the intestinal contents. The obstruction may be due to blocking of the canal by a solid body (gall-stones, indurated fæces, foreign bodies); to stricture, the result of either a new growth, particularly carcinoma, or of cicatrization in ulcers; to compression from without (tumors, dislocated organs, pregnant womb, etc.); to strangulation of the bowel, etc.

A second group comprises all those cases where constipation is associated with *chronic inflammation* of the large intestine, not necessarily of the whole of it, but rather scattered here and there along its course. The small bowel not being concerned in the act of defecation, no affection on its part short of complete occlusion is able to interfere with the passage of motions; even stricture proves no barrier to its liquid contents. In catarrh of the large bowel, on the contrary, constipation is of all symptoms the one most frequently encountered.

¹ Reported by H. Cleves-Symmes, M.D.

A third group, finally, may be distinguished, in which are united all those cases where the inability to propel the contents is the result of *motor weakness of the bowel walls without inflammatory or other anatomical change*, a disorder of a purely functional nature much akin to "motor insufficiency" in the stomach. It is with this last kind of trouble that we shall deal to-day. Bearing in mind that peristalsis is dependent upon stimulation of the nerves, or rather, since muscle and nerve are considered to compose a physiological unit, of the motor-nervous apparatus, we may safely assume chronic constipation, wherever not explained by anatomical alterations in the large intestine, to be of the nature of a *neurosis*. This view holds good in all but certain cases of congenital aplasia of the intestinal musculature (Nothnagel), which, owing to their rarity and the impossibility of diagnosing the condition in the living patient, do not materially affect its correctness.

In different persons the motions vary in number and in quality according to individual disposition and the character of the food ingested, hence there is no such thing as a standard time-limit marking off constipation from normal intestinal action. Farinaceous food brings on copious stools after shorter intervals, whereas a diet composed chiefly of albuminous material results in sluggish and scanty motions,—not, however, in constipation. This name should be reserved for those cases only where the number of evacuations is diminished and the interval prolonged beyond the rate habitually pertaining to the individual in question. In the healthy adult supporting himself on a mixed diet one passage a day is the rule. But exceptions are constantly coming to our notice, ranging from several motions a day to one every two, three, or four days, without interfering with the well-being of the subject; in rare cases intervals up to ten days have even been recorded. Where this individual limit is overstepped for any length of time, in the absence of organic lesion that might be held accountable, there applies the term "*habitual constipation*," or, better still, "*atonicity of the bowels*."

The *causes* that may conduce to this condition are manifold. Often they are to be sought in mistakes as to diet. Long-continued restriction to non-stimulating food, by rendering the bowels torpid, is no less harmful in its ultimate effects than excessive stimulation by reason of the quality or the quantity—vegetarians!—of food habitually ingested. Both extremes lead to the same result in the end,—namely, to exhaustion of the bowel. Much the same condition is brought on by undue indulgence in purging medicines. Also inadequate consumption of fluid retards intestinal locomotion, not by rendering the *faeces* more

solid, but in an indirect way by thickening the blood and diminishing the secretion of the intestinal glands, especially of the liver and the pancreas. Furthermore, irregularity in regard to the time of going to stool interferes with the clock-like punctuality with which the normal organ discharges its functions. Neglect of the natural promptings ultimately leads to their suppression. The disadvantages of a sedentary life are less important than is generally supposed. The remedy usually recommended is exercise, but its beneficial effect on peristalsis is generally paralyzed and rendered nugatory by the skin and the lungs giving off an increased amount of moisture during exercise. Conditions of mental depression by reflex action bring an inhibitory influence to bear on the intestinal nerves, and many obstinate cases have been known to date from periods of domestic sorrow or business worry.

Anæmia, adiposity, and all the other various conditions and diseases that interfere with the abdominal circulation and cause venous hyperæmia, particularly in the inferior portion of the intestine, tend to bring on constipation. Even slight disturbances confined to a limited area may entail the same result, as, for instance, retroflexion of the womb,—not by pressure upon the rectum, but by doubling the vessels of the broad ligament and thus setting up venous congestion in the lower part of the gut. In a similar manner we find a very bad effect to result from wearing close-fitting belts, from tight lacing, etc.

An extremely persistent atonic condition of the intestinal nerves is met with in spinal and cerebral disease. You will not be surprised at this when you bear in mind the intimate relations existing between the central nervous apparatus and that of the digestive tract, although I am not able to explain how or why just this atonic condition results. In functional troubles of the nervous system, hysteria, and especially neurasthenia, chronic constipation likewise stands out very prominent among the symptoms; not to such a degree, however, as to justify the statement of some authors, that it always comes from this source. It is true that we generally find evidence of neurasthenia in cases of long standing, but there it is merely of the nature of a superadded secondary complication. Finally, constipation is counted among the sequelæ of exhausting disease. I have frequently observed this occurrence after typhoid, measles, chlorosis, etc. The possible causes of chronic atonic constipation are thus seen to be somewhat numerous, and but for the importance of the matter it might appear superfluous to insist once again on the paramount necessity of ascertaining and combating its cause or causes, while applying at the same time those symptomatic remedies that I am about to explain and show to you.

The local symptoms in chronic constipation are too well known ; the general symptoms, of a reflex nature, too varying to be here detailed. Successful treatment of their common cause will enable you to differentiate them from other similar ailments. "*Remota causa cessat effectus*:" complaints of a secondary nature will disappear along with the main trouble, whereas these foreign ailments will remain.

In making a *differential diagnosis* it is difficult sometimes to decide whether or not chronic inflammation is present at the same time as atonicity. You may solve this doubt by examining the motions. Invariably in catarrh of the large intestine mucus, secreted by the inflamed membrane, will be found admixed to the fæces, generally visible to the naked eye in the shape of minute lumps or shreds intimately mingled with the motions ; in affections of the cæcum or ascending colon, or as a glairy mass thinly spread over the scybala ; in disease of the rectum, condensation of the fæces into lumps having taken place higher up before the mucus was added. Where mucus is present in very small amount you will have to consult the microscope. You will then perceive here and there between the manifold ingredients upon your slide roundish, apparently empty spaces, consisting of transparent particles of mucine, which turn cloudy and white upon adding acetic acid. So-called "hyaline islets of mucus," visible only under the microscope, are often in catarrh encountered in stools where the naked eye failed to detect any trace of mucus ; for this reason a careful microscopic examination should never be omitted in doubtful cases. The normal evacuations also contain mucus, but only a very small quantity, and that little so evenly commingled with the rest as to escape detection even by the microscope ; its presence can only be proved by chemical analysis.

In examining for mucus there is one mistake you must guard against,—you must not confound true catarrh with mere transitory irritation of the mucous membrane owing to stagnant fæcal matter. In the latter case the mucus is sure to disappear if the canal, by means of purgatives, is kept clear for a few days of the offending material. If mucus is still found after a week of such treatment then the presence of genuine catarrhal inflammation is established.

I must qualify the statement I made before when I said that constipation unattended by anatomical alterations within the gut was of an atonic character. It generally is so, but in some cases the reverse condition of *spastic* constriction obtains. There the longitudinal and circular layers of non-striped muscle, instead of acting alternately and thereby moving on the contents of the intestine, contract simultaneously,

thus completely blocking the way. In lead-poisoning this takes place throughout the entire length of the intestine, the diminished volume of that organ causing the indrawing of the abdominal parietes which you saw the other day. More common, particularly in persons of neurotic temperament, is partial spasmodic contraction of the gut, giving rise to attacks of griping pain, and, as a rule, distinguished by motions pencil-like in shape and size. Sometimes, also, they look like sheep's dung, consisting of small, round lumps; this form, however, may also be encountered in atonic constipation. It merely signifies that the excreted matter has been arrested for a certain length of time in the haustra of the colon. Enterospasmus may occur alone, or, more generally, in association with colitis, or with atonic constipation. Its recognition presents but little difficulty to one who is aware of the symptoms and makes a point of examining both the abdomen and the stools.

Treatment of Chronic Constipation due to Catarrh of the Large Intestine.—The treatment of chronic intestinal catarrh is very difficult, requiring a great deal of patience. The measures to be resorted to are in the main of an *hygienic and dietetic* kind. Plenty of good air and a moderate amount of exercise are to be recommended. The abdominal circulation should be regulated and the surplus blood drawn to the skin by mild *hydrotherapeutic* stimulation, such as cold frictions, Scotch shower-baths (alternately warm and cold), and the application of a moist abdominal bandage during the night. A moist towel, half a yard wide, is wrapped round the body; around this is wound a dry cloth, and this, in turn, is covered with a piece of gutta-percha paper to prevent evaporation. The skin, thus enveloped in a hot atmosphere charged with steam, becomes red and hyperæmic, relieving the inflamed bowels by depletion. Moisture and heat combine their beneficial action, for *warmth* is an important aid in treating these cases, both externally and internally applied. Cold drinking, even, should be avoided. It is a common mistake in this condition to recommend raw fruit with a view towards facilitating the motions. On the contrary, the *diet* of such patients should be mild and non-irritating. Light vegetables are permitted, heavy ones forbidden, as they are apt to ferment, producing gas and winds, and because the cellulose which enters largely into their composition is highly irritating to the walls of the bowel.

Contrary to general opinion, the consumption of *fat* is to be encouraged to the extent of forty to sixty grammes ($1\frac{1}{2}$ to 2 ounces) a day. It is very nutritious and readily absorbed by the healthy small

intestine; and, further, it serves to lubricate the *faeces* and thus facilitate their passage. This refers, however, only to fats with a melting point no higher than 40° C., such as oil, butter, lipanin, etc.; beef-tallow, mutton-tallow, and bacon are not included in the recommendation.

In regard to *albuminous* material, in the first place meat and eggs, no particular rules are required. The patient continues with his customary allowance, unless it be excessively large. In that case the amount must be cut down in order to avoid inordinate fermentation of the chymus. But albumen in the shape of animal food must never be wholly dispensed with after the fashion of the vegetarians. Any amount of milk is allowed so long as it agrees with the patient.

Mineral waters, such as those of Karlsbad and Vichy, containing sulphate and carbonate of sodium, are often taken with advantage for a time. Generally they are drunk lukewarm, but at Marienbad stout patients are ordered to take them cold.

The treatment by massage and electricity is the same as for atonicity. I shall explain it later on.

The employment of aperient medicines is unavoidable, even where we endeavor to restrict the practice. When you do find yourself obliged to prescribe I recommend you to confine yourself to saline purgatives, alone or in combination with rhubarb or tincture of *cascara sagrada*. Drastics should never be used here.

Where these means prove inefficient we resort to *simple enemata*, such as warm water or thin gruel, which soften the *faeces* and mechanically empty the rectum. I have found it a very good plan first to evacuate the rectum by a small enema; then to reintroduce the tube, the patient resting on knees and elbows and leaning alternately to right and left to facilitate the passage of the second enema up the canal. Two pints of fluid may be thus used and allowed to remain for some time in contact with the diseased parts. Much benefit is thus conferred by cleansing the inflamed surface and removing decomposed irritant material. Drugs may of course be added to these clysters, though it is rather cases of chronic catarrh associated with diarrhoea than with constipation that call for their use.

Kussmaul and Fleiner have recently pointed out the advantages of oil clysters. I shall have something to say on this subject later on.

We now come to the *treatment of atonicity of the bowels*,—of atonicity pure and simple.

Where other conditions or circumstances are present which are thought to cause or foster atonicity, these, of course, must be corrected in the first place. A careful search must be made for predisposing

somatic or mental influences; complications in the way of organic disease must be subjected to the proper treatment; change of scenery or of occupation, judiciously advised, is known to have done wonders for a certain class of neurotic patients.

Our first duty on taking charge of such a case will be to restrict the use of purgatives which these patients have generally come to be entirely dependent upon. Something else must be substituted in their place, since the bowels have lost the habit of acting of their own accord. Fortunately, we have an excellent means at hand in *the oil enemata*, which I have already mentioned. *These enemata suit all affections of the large intestine not associated with motor irritation*, independently of the presence of inflammation and even ulceration, or of colics, whether the bowels be sensitive or no, whether constipation be due to atonicity or to a spastic condition of the intestine. You place the patient on his back, with the pelvis slightly elevated; stand a vessel containing about one pint of warm oil (40° C.; for a child from two to five ounces) at an altitude of two feet above the anal opening, and by means of a piece of black rubber tubing you administer the enema. The nozzle does not require to be introduced very far, but it must be provided with a large opening at the end, as the viscid oil flows along very slowly. In this position the patient is left for about half an hour, at the end of which time all of the oil has entered the bowel. There it is sucked on by capillary attraction through the narrow interspaces among the fæcal masses and between them and the walls of the bowel, dissolving the mucus and wholly enveloping the scybala, till it penetrates beyond the ileo-cæcal valve. Its getting that far is readily proved by the fact that the stools yield Gmelin's reaction, which shows the oil to have been in the small intestine and there to have mixed with the bile. The oil used should be perfectly pure, of course, and free from irritating rancid products, a good quality of olive oil or of oil of poppies or of sesamum answering these requirements. The patient afterwards is kept lying for an hour, then is allowed to walk about in the room. If after the lapse of three hours no evacuation has resulted, then a clyster of warm water is given. This course is followed for a few days till soft, semiliquid stools occur spontaneously. That is a sign that the oil has done all that it is capable of effecting, and thenceforth these enemata are repeated at greater intervals and in smaller amounts, and finally discontinued. This treatment is excellent so far as it goes, but it is unable to effect a cure unless combined with other measures, such as hydrotherapeutics, electricity, massage, and dietary prescriptions.

Taking up first the question of *diet*, I must point out to you that the principle of treatment for chronic catarrh is here reversed. There you endeavor to avoid irritating the diseased mucosa, and you prescribe a mild diet; here, on the contrary, it is your aim to stimulate the torpid organ, and a coarser quality of food is called for. Raw fruit, Graham bread, and vegetables prove useful; diarrhoea is a warning that you have gone too far. Although a purely vegetarian *régime* is not advisable, yet it is well in some cases to curtail your patient's allowance of animal food. There is no doubt but nervous affections of the bowels, particularly in patients subject to neurasthenia but otherwise strong and healthy, may receive much benefit by restricting the consumption of animal albumen to eggs and milk. A surcharge of the system with the products of albuminal metabolism seems to give rise to sensory irritation. Where the patient's constitution is not robust and his digestion feeble, this semi-vegetarian diet would be injurious; such cases stand in need of much albumen.

The hydrotherapeutic treatment requires a good deal of discretion and individualization. Cold applications are preferable in general for the sake of their stimulating effect on the nervous system. I have a certain confidence in cold sitz-baths. However, each case must stand on its own merits and requirements.

The effect of *exercise* is beneficial only as regards the nervous system. The bowels, on the contrary, are rather apt to be prejudicially influenced through the loss of so much moisture by way of the skin. Therefore, bodily exercise should be kept within moderate bounds. *To passive* motion, on the other hand, this drawback does not apply. *Massage* of all kinds should therefore be used. This may be combined with auto-massage by the patient, who soon becomes skilful in the simple manipulations of stroking, kneading, and tapping his abdomen.

Gymnastics present few inducements except where the abdominal muscles are weak, as is often the case in females. There it is well to provide work for these muscles by such exercises as flexing the thighs on the abdomen, inclining and rolling the upper body to different sides, with the hands resting on the hips, etc. In males I have never observed any benefit to the bowels to accrue from gymnastics.

Electricity, in combination with our other procedures, is to be highly recommended. The faradic current is generally used, one pole being applied to the abdomen, while the other, in the shape of a stout insulated wire terminating in a button, is carried up three or four inches into the rectum. The current must be sufficiently strong to provoke

visible contractions of the abdominal muscles. It is allowed to act from five to fifteen minutes, with frequent interruptions and shifting of the external plate to different parts of the abdomen. If the galvanic current be used,—its domain embraces rather cases of motor or sensory irritability,—care must be taken to protect the mucous membrane from being cauterized. Either the ampulla of the rectum is filled with a one-per-cent. sodium chloride solution or the current is introduced according to my method through a wire enclosed in a catheter with numerous terminal perforations, a stream of water meanwhile passing through the catheter, which may be shut off by a stopcock. The anode is applied to the abdomen in the shape of a sponge, or of a metal plate enveloped in a moist cloth. The strength of the current should range between five and ten milliamperes.

I am able to-day to show you one case treated according to these methods and much improved. This little girl of six years had for a couple of months been treated for chronic constipation with enemata of water and with aperients. She was steadily sinking and in a very bad condition when I saw her two months ago. Since then she has been treated by the oil cure and with faradic, later on with galvanic, electricity. I shall ask one of the gentlemen to step down and apply the current to her.

I have been asked whether infants in arms may be subject to chronic constipation. Yes, they are. I have had several cases of the kind myself. The remedies to be used are oil, of which three or four ounces are injected from a rubber syringe, abdominal massage, and the free addition of lactose to the milk. Aperients must be avoided.

THE TREATMENT OF PRIMARY GLAUCOMA.

POST-GRADUATE LECTURE DELIVERED AT THE ROYAL LONDON OPHTHALMIC HOSPITAL.

BY E. TREACHER COLLINS, F.R.C.S.,

Assistant Surgeon to the Royal London Ophthalmic Hospital.

GENTLEMEN,—Fifty years ago glaucoma was an incurable disease. Persons who became afflicted with it inevitably became blind, and, if they suffered from its acute form, had to endure the most intense pain. Now in the majority of cases the course of the disease can be arrested, the sight be preserved, and the pain relieved, while in those in whom a lasting cure is not effected the progress of the disease can be very much delayed. The first rational treatment for glaucoma was that practised by Mackenzie, of Glasgow. He showed that the tension of the eye in this disease was increased, and he attempted to reduce it by the operation of paracentesis of the anterior chamber. Von Graefe also independently adopted this operation, but both operators found that in the large majority of cases the relief of tension was only of temporary duration.

Von Graefe had noticed that in performing an iridectomy for the purpose of making an artificial pupil in an eye with partial staphyloma of the cornea the tension which previous to the operation was increased became diminished, and that the staphyloma, instead of becoming more pronounced, tended to recede. This suggested to him the possibility that an iridectomy might relieve permanently the tension in primary glaucoma, and he commenced performing the operation for this affection, in 1856, with the most satisfactory results. But though Graefe practised iridectomy for fifteen years and was able to point out the cases for which it was best suited, and its limitations, he was unable to explain its mode of action.

Laqueur, of Strasburg, in 1876, was the first to suggest the use of myotics in glaucoma. Graefe and others had found that the use of atropine tended to intensify the symptoms and further increase the

tension of the eye, and it occurred to Laqueur that a drug which has just the opposite physiological effect might prove beneficial. Since that time myotics have been of the greatest assistance in the treatment of glaucoma.

Their use is very valuable previous to the operation of iridectomy, for by tending to reduce the tension and by contracting the pupil they facilitate the ease with which it can be performed. When the pupil is small the iris can be much more readily grasped and a larger piece drawn out and removed.

The effect which a myotic, such as eserine, has on the pupil in a case of glaucoma gives a very fair indication as to the amount of good, so far as the permanent relief of tension is concerned, which is likely to be obtained from an iridectomy. If the pupil remains in its semi-dilated condition after a free application of eserine, it means that a good deal of adhesion has taken place between the root of the iris and the periphery of the cornea, and the possibility of an iridectomy doing much good in such a case is but slight.

Myotics are of great use in certain cases where an operation is not thought advisable, as in some cases of chronic glaucoma, and in cases where a number of hemorrhages are seen in the retina, in which it is likely that a sudden diminution of tension, such as occurs at the time of the operation, would lead to further and more extensive intraocular hemorrhage.

They are also of use in preventing the onset of an acute attack of glaucoma in the second eye of a patient when an operation for glaucoma has been performed on the first. I always apply eserine drops to the second eye of a patient on whom I have performed an iridectomy for glaucoma immediately on the conclusion of the operation, and have them applied three times a day for the next week. When this precaution has not been adopted I have several times seen an acute attack of glaucoma set in the second eye, apparently stimulated by the shock of the operation on the first.

Some surgeons treat all cases of chronic glaucoma with eserine in preference to operating, and no doubt some cases will be able to go for a number of years without any deterioration of vision under the eserine treatment.

In a large number of cases, however, it will be found that in spite of the eserine there is a gradual and steady contraction in the field of vision and loss of central visual acuity. Such patients, moreover, are always liable, as the result of some slight general disturbance, to the onset of an acute attack which cannot be controlled by myotics, when

the surgeon is forced to operate under the most unfavorable circumstances, with the eye injected, the tension greatly raised, and the anterior chamber markedly shallowed.

For these reasons I generally advise iridectomy in all cases of chronic glaucoma, except when the field of vision is contracted almost up to the fixation-point. The immediate result of an iridectomy is generally to cause a slight increase in the contraction of the field. If the limitation of the field of vision is close on to the fixation-point, the immediate effect of the iridectomy may be to blot out the patient's central vision, for which the operation and operator naturally have to bear the blame.

With regard to the iridectomy, it was originally thought that the removal of a broad piece of the iris was the most important part. Some have, however, come to regard the cicatrix which is made in the sclero-corneal tissue as the chief factor in the relief of tension, and Stellwag, acting on this belief, substituted the operation which is known as sclerotomy, in which no iris is removed, for that of iridectomy.

I have had the opportunity of examining a large number of eyes pathologically which have been operated on for glaucoma and in which the tension has not been relieved. I have also examined a few in which the operation was successful, but where the eye had later to be excised for some intercurrent malady. As the result of these examinations I have found that an operation for glaucoma may relieve tension in two different ways,—one which depends on the removal of a portion of the iris, and the other in the formation of a cystoid condition of the scar at the sclero-corneal margin. It is well known that iridectomy for glaucoma succeeds much better in acute cases, or where the onset of the symptoms has been of but short duration, than in chronic cases or those of long standing.

In an acute case of glaucoma the root of the iris, which is pressed forward into contact with the periphery of the cornea, and obstructs the passage of the aqueous humor out through the spaces of Fontana, has only been in its faulty position for a short time, and no firm adhesion has formed between it and the cornea, as occurs in cases that have been of long standing. In an acute case, therefore, when the iris is grasped with forceps, very slight means tend to remove it from contact with the cornea, and if drawn upon, it tends to tear through at its thinnest part,—*i.e.*, its point of junction with the ciliary body. In this way the spaces of Fontana, the normal exit of aqueous humor from the eye, which were formerly blocked, are readily opened up.

In cases of glaucoma of long standing, where the root of the iris

has been for a long time in contact with the periphery of the cornea, and where they have become absolutely adherent, it is sometimes a physical impossibility to separate them; when in such a case the iris is drawn upon, instead of tearing through at its extreme periphery, it tears at the point where it ceases to be adherent. A large piece of the iris may have been removed in these cases, and yet the portion which blocks up the spaces of Fontana be left, so that on the closure of the wound the aqueous humor is still unable to find exit from the eye.

Before proceeding to the second way in which an operation may bring about a permanent relief of tension, I will describe what is the best way to perform iridectomy, so as to remove the iris up to its extreme periphery. For this purpose it is not necessary to make a peripheral incision. The iris, if not adherent to the cornea, will, when drawn upon, tear through at its thinnest part wherever the incision is made. I usually make my incision just at the sclero-corneal margin, and carry the knife on so as to have a good conjunctival flap, which will assist in the rapid closing of the wound and the rapid re-formation of the anterior chamber. I prefer to make the incision with a short Graefe knife rather than with a keratome, as with the latter, even in the most experienced hands, there is considerable risk in steering the point through the shallow anterior chamber of pushing it into the lens. Having completed the incision, I pass the iris forceps into one angle of the wound and grasp the iris a little to one side of it; then withdraw the iris and snip it with the scissors so as to make a cut through from its pupillary to its ciliary border. I next draw on the iris to tear it away along the whole length of the incision, and finally snip it through again at the opposite extremity of the wound.

The anterior chamber in a glaucomatous eye, previous to the operation being abnormally shallow, is after the operation often very slow in reforming, in consequence of which a serious complication sometimes arises. The anterior chamber not having reformed the lens lies in contact with the posterior surface of the wound, and the plastic exudation which is thrown out to unite the edges of the wound sometimes also unites the lens capsule to it; then when the anterior chamber does begin to reform, the lens at its upper part, remaining adherent to the wound, becomes tilted forward, and its upper margin may continue to obstruct the filtration area in the region of the coloboma.

Sometimes after an operation for glaucoma the wound in the sclero-corneal tissue, instead of becoming firmly healed and formed into a dense opaque cicatrix, has one or more translucent areas in it which tend to bulge; this condition is spoken of as a cystoid cicatrix. It

has been observed that when this cystoid condition of scar is formed the tension is generally relieved. The way in which a cystoid cicatrix is developed I have found to be as follows: a prolapse of a fold of iris occurs into the wound in the sclero-corneal tissue which prevents its two edges from uniting. The conjunctiva heals over the prolapse, and the anterior surface of the prolapsing iris unites to each side of the wound. A permanent gap is thus established in the fibrous tissue tunic of the globe through which the aqueous humor would be able to escape into the subconjunctival tissue were it not for the iris which blocks the way; gradually, as the intraocular fluid recollects and the tension again rises, the gap, which is a weak spot in the eye, tends to expand and become cystoid, the iris lining it becomes stretched and atrophied, and ultimately offers no further resistance to the passage of fluids through it into the conjunctival tissue.

In this way a permanent fistula is formed in the walls of the globe through which the aqueous humor can escape, its normal passages of exit remaining blocked.

A cystoid cicatrix may occur after both the operations of sclerotomy and iridectomy. After an iridectomy the cystoid portion is most frequently seen at the extremities of the wound,—i.e., at the angles of the coloboma, where a fold of iris is very likely to become incarcerated. There is one objection to cystoid cicatrices which it is well to bear in mind. It is that the uveal tract of eyes in which they are present is very liable to become infected by any inflammation of the conjunctiva. There being a gap in the sclero-corneal tissue it is very easy for an inflammation affecting the surface membrane of the eye to extend into its interior. Hence the greatest care should be taken to protect an eye in which a cystoid cicatrix is present from all possible sources of infection or irritation.

In conclusion, I would urge on you the importance of performing an iridectomy early, not only in acute or subacute glaucoma, but also in chronic cases. In the early stages of the latter the eye is in much the most favorable condition for operation, and the chance of removing the iris well up to its periphery is greatest. If the operation is delayed permanent adhesion of the root of the iris to the cornea occurs. Moreover, though a fairly large piece of iris is cut off, the spaces of Fontana are not opened up, and the increase of tension reappears.

THE CONSERVATIVE TREATMENT OF FIBROIDS.

CLINICAL LECTURE DELIVERED AT ST. GEORGE'S HOSPITAL.

BY LEONARD REMFRY, M.A., M.D., B.C. (Cantab.),

Assistant Obstetric Physician and Lecturer on Diseases of Women and Children
at St. George's Hospital ; Obstetric Physician to the Great Northern Central
Hospital.

GENTLEMEN,—Considering the common occurrence of fibroids and the varying symptoms to which they may give rise, it is essential that their treatment should be carefully studied. The title of this paper may insinuate that radical operations, some very dangerous in character, are not infrequently performed rather thoughtlessly and merely because a tumor exists. “Conservative treatment” means an attempt to render a woman possessed of a fibroid capable of living a very enduring and useful life, and to avoid operation unless it be certainly indicated.

The author by no means wishes to argue as a physician or as a surgeon only, but rather as both, for those who practise in obstetrics and gynaecology should combine in their training the “gentle art” of the former with the manipulative skill and resource of the latter.

A book on the diseases of women, published nearly thirty years ago, when, indeed, it was considered to be of great merit, says, speaking generally about fibroids, “The removal of the tumor should be effected whenever the circumstances are such as to render the removal safe for the patient.” A significant sentence in the same work to couple with this is that abdominal section for fibroids is most successful in those cases where it is least necessary ! This is by the way.

Now, before discussing this “conservative treatment,” it will be necessary to marshal certain facts, some well known, some surrounded by doubt. Moreover, it must be understood that uterine fibroids form the theme in this dissertation, and not such as grow from other parts. What is usually called a fibroid may be a pure myoma or a fibromyoma,—i.e., a tumor formed of a lesser or greater quantity of fibrous tissue. The growth commences in the uterine wall, and as it increases in development bulges either internally into the cavity of the womb or

externally,—*i.e.*, subperitoneally. In either case it may become polypoid. When the thickening is strictly in the wall of the uterus and forms no projection it is called interstitial,—the uterus sometimes being uniformly enlarged, with increased hardness probably in one or more parts, the sound passing more than its normal length. The cavity is increased, as a rule, in length and width. Subperitoneal fibroids cause symptoms by pressure, internal fibroids give rise to hemorrhage principally, and the interstitial variety produce distress by pressure or bleeding or, perhaps, by both. The symptoms and signs brought about by pressure naturally vary according to the size and position of the tumor, from slight pain up to intestinal obstruction, hydronephrosis, sloughing, etc. Besides hemorrhage the internal fibroid causes leucorrhœa, dysmenorrhœa, etc., the endometrium being congested and generally actually in a chronic state of inflammation.

When a fibroid causes death the commonest reasons are hemorrhage, septicæmia, bladder troubles, prostration, or the coexistence of pregnancy. Fibroids, however, do not usually prove fatal.

The operations performed “per abdomen” cannot be discussed here, for in contemplating these we pass without the bounds of conservative treatment.

Curettage, however, is conservative as far as the normal tissues are concerned, for by it is removed only the thickened endometrium,—the product of chronic congestion and inflammation.

Since the day when cleanliness and the use of antiseptics were brought to the front, the dangers of operations have been of course immensely reduced, but in the case of intra-uterine manipulations (not taking into account that risky operation called enucleation) there should practically be no reason to fear sepsis at all if the well-known precautionary measures be employed. The changes which a fibroid may undergo in itself are well known and need not be mentioned.

The coexistence of pregnancy with fibroids is of serious consequence, although it has been said rightly, in the case of an interstitial growth, that during the process of involution of the uterus involution of the fibroid may go on more or less according to the amount of muscular tissue present. In some cases fibroids are said to have completely disappeared. This is no doubt true, but the dangers present in this complication of tumor and pregnancy are serious, and if the patient with a fibroid be one in whom pregnancy is likely to occur, most careful injunctions must be given that should amenorrhœa arise medical advice must be immediately sought. A case lately seen by the author illustrates the importance of an early diagnosis being made. Two

years ago the patient came under observation and was found to have a universally enlarged pear-shaped uterus about the size of a cocoanut. She complained of menorrhagia. No lump had been noticed. On examination a rounded smooth mass could be felt just above the pubes, and bimanually this was found to be, as stated, a fibroid uterus freely movable. It gave no discomfort. The woman's husband was said to be impotent. After eighteen months' treatment the womb was somewhat increased in size, but the periods were shorter with less bleeding, and beyond having a feeling of weight in the stomach the patient felt quite well. A month after this she became pregnant and the periods ceased. The husband was successful on one occasion, according to all accounts. The abdomen gradually increased, but no notice of it was taken. After five months she presented herself "thinking" that her "stomach" was bigger and that, perhaps, she might be "in the family way." The abdomen was very large, and appeared to be entirely occupied by a swelling reaching to the xiphoid cartilage. The major part of the mass seemed to be hard and somewhat nodulated, while the portion on the right and upper part of the abdomen had a very elastic and fluctuating feel. Per vaginam the huge mass seemed to be altogether hard, and a sulcus apparently separated one-half of the tumor from the other. A marked souffle was heard over the whole abdomen. The diagnosis was very difficult, and it was thought that, owing to the very marked fluctuation in the right upper region, perhaps there was an ovarian tumor as well as a fibroid, complicated by pregnancy. The patient's pulse was weak and her general condition was grave. An exploratory abdominal incision was considered justifiable. It was found that two-thirds of the mass on the left side was hard and solid, while the rest of it consisted of the enlarged uterine cavity containing a five months' old foetus, and extended as far as the upper limit of the whole tumor. The fluctuation was due to the contained liquor amnii. Fibroid nodules were very numerous.

Owing to the extremely weak state of the woman nothing was done,—the mere exploration having produced considerable collapse. After four or five days there seemed to be some hope, but premature labor commenced, and the patient died of exhaustion. At the post-mortem there was nothing to suggest the cause of death. If abortion had been induced early, no doubt the patient would now be living.

The case may appear to some as an argument against conservatism; but the unfortunate termination was brought about most clearly by lack of care on the part of the poor woman when the first symptoms of pregnancy showed themselves.

A photograph (Fig. 1) of the specimen removed post mortem is appended, showing on one side the entire length of the uterine cavity laid open, and on the other a fibroid portion cut transversely. The illustration is deceptive in a way, for the tumor appears now very much smaller, owing to the effects of the alcohol. When a fibroid exists with pregnancy, and forms a part of the uterus, the whole mass increases very rapidly in size.

Although, then, it is a fact that in the process of involution fibroids involute too, still the dangers of allowing a pregnancy to continue quite overbalance any chance of a possible benefit resulting. Important complications may occur at the time of delivery; for instance, very severe postpartum hemorrhage, due to interference with retraction, etc. After delivery, the uterus in normal cases undergoes a considerable amount of contraction without subsequent relaxation. This is called "retraction." The fibroid cannot contract to any extent, because it has no cavity, and it prevents, owing to its intimate connection with the uterus, the contraction and retraction of that organ, such as occurs in natural cases.

It must be distinctly remembered that all remarks in reference to the treatment of fibroid tumors of the uterus that are made in this lecture refer to their management by non-operative procedures, and that the class of cases to which this treatment is applicable are those in which there are no severe symptoms, as, for example, the excessive loss of blood at the menstrual period or during the interval, or when the tumor by its mere weight and size causes excessive distress. In other words, should any serious or urgent complication present itself, the conservative treatment must be abandoned at once and immediate recourse be had to that relief which an operative procedure alone can afford. It would be foolish ever to mention the word "temporize" when dangerous contingencies arise, as, indeed, they do in all branches of surgery, and when immediate and radical treatment is imperatively demanded. If a fibroid is doing no harm, and if it can be watched and cared for, an operation may either never be necessary, or, at all events, be delayed with absolute safety, for undoubtedly these tumors often cease to grow, and cause no inconvenience.

Curetting is the only operation allowed under the rules of conservative treatment. This operation, by completely removing all hypertrophied and unhealthy fibrous mucous membrane lining the cavity of the uterus, often produces a most decided improvement in the condition of the patient. The muco-purulent discharge that so frequently accompanies fibroid tumor of the uterus is usually entirely

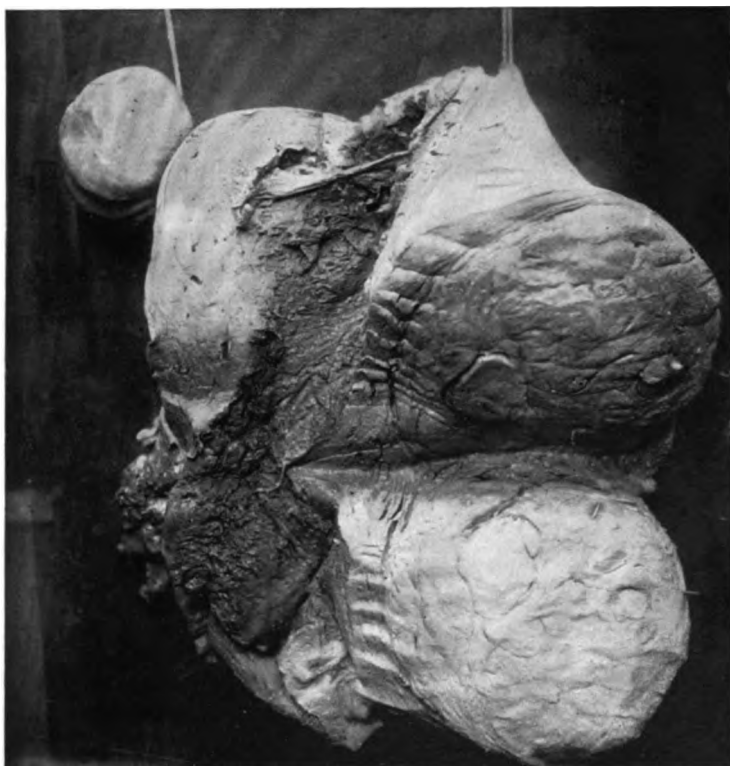


FIG. 1.—Fibroid tumor of the uterus removed post mortem.

relieved. The severe pain that is so uniformly complained of in cases of uterine tumors of this description may be greatly mitigated, and at times may entirely disappear after the operation of curettage.

Speaking generally, the object of the treatment is to carry the patient on to the menopause, for then atrophy of the pelvic organs takes place, and, coincident with it, atrophy of non-malignant tumors. Soft fibroids occasionally continue to grow after the change of life.

As said before, "fibroids" are either pure myomata (muscle tumors), or fibromyomata (a combination of muscular and fibrous tissue).

The general lines of treatment should be as follows :

1. *Exercise*.—This will develop the muscles generally used in bodily exercise, and the muscle-forming foods will go principally to them, and not to a tumor which may be taken to represent abnormal muscular formative energy.

2. *Food*.—This should consist of substances which do not specially form muscular tissue. Red meat is bad. White meat, fish, starchy foods, and vegetables are especially indicated, but white meat should be taken sparingly. Fresh fruit is especially desirable, and should be strongly recommended, not only because it acts as a non-muscle-forming food, but because fruit in abundance acts as a laxative, and thus prevents the occurrence of constipation, which is so constantly present in cases of fibroid tumors of the uterus. The most desirable fruits are oranges, grape fruit, grapes, peaches, and apples.

3. *Purgatives*.—Magnesium sulphate and sodium sulphate are the best, for they deplete the pelvis by relieving the lower bowel thoroughly.

4. *Rest during Menstruation*.—All the organs which have a connection with the uterus are congested at the "period." Therefore complete rest during the first two or three days should be insisted upon.

5. *Drugs*.—In interstitial or submucous tumors the patient should be kept on ergot continuously, bromide of potassium being a useful addition sometimes. Ergot can be taken in all weathers, and keeps well if to the mixture be added five drops of hydrobromic acid and fifteen drops of spirits of chloroform.

6. *Operation*.—If there be much bleeding, the cervix should be dilated to see if there be a polypus. In cases of hemorrhage, leucorrhœa, and dysmenorrhœa the cavity should be thoroughly curetted, and the walls subsequently painted with iodized phenol.

7. *Watching*.—A regular and periodical examination of the tumor must be made, and strict injunctions given to the patient to report herself immediately should any change of symptoms occur.

8. *Emergencies*, and their treatment.

For severe hemorrhage inject one drachm of extract of liquid ergot into the buttock. Plug the uterus and vagina with gauze. Give twenty drops of liquor calcii chlorinatus in water and syrup of lemon. This will stop the tendency to hemorrhage by causing coagulation at the bleeding area.

Another danger is retroversion of a fibroid uterus, causing retention of urine, owing to pressure on the urethra by the cervix. After replacement, the accident may be prevented from occurring again by the use of a Hodge pessary.

In conclusion, the author would say that it has been impossible, owing to the space at his disposal, to go more deeply into the subject. However, much may be done by the "conservative treatment." If, as occasionally happens, it should fail in a particular case, the author would be the first, in order to save life, to advocate and perform the abdominal operation most suitable for the relief of the condition.

THE TREATMENT OF FRACTURE OF THE PATELLA.

CLINICAL LECTURE DELIVERED AT THE KENTUCKY SCHOOL OF MEDICINE
HOSPITAL.

BY WILLIAM L. RODMAN, A.M., M.D.,

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ville, Kentucky.

GENTLEMEN,—The patient who will presently be brought before you is a man, aged fifty-nine years, who comes to us with the history that he sustained some weeks ago a fracture of the patella. I am glad to hear Dr. Holloway say that he has just finished a series of lectures to you on fracture of the patella, in a didactic way; I am sure that he told you at the time that you could not treat all cases alike. If this patient lived in the city, or could remain in the hospital for several days or weeks, I would follow a different plan of treatment than I propose to do in the present instance. He has come to us for treatment from the country, and is anxious to go home at the earliest possible moment.

There are several methods to be employed in treating fractures of the patella. One is by use of the posterior splint, such as you saw on the patient when he was brought before you. This plan is not a bad one. A better splint, however, than this is one devised by Dr. Agnew, of Philadelphia, which is an excellent contrivance. It is curved above to fit the thigh and below to fit the leg; then there is a pin above and below the centre of the splint, on which strips of adhesive plaster are so placed that they can be tightly or loosely applied at will to the fragments of the patella, and thus hold them in position. It is, indeed, a very ingenious and simple device. Another method of treating fracture of the patella—and I have had some excellent results by this method—is by the application of a plaster-of-Paris dressing with the leg in complete extension. Another good way, to be used in connec-

tion with the plaster dressing, is to make firm pressure above and below the knee, so as to hold the fragments in proper position before the plaster is applied. Then another very good method which was in vogue twenty years ago, and is still practised to some extent, is by the application of Malgaigne's hooks,—that is, two hooks above and below the patella, screwing them up as tightly as you please, so as to get the fragments in apposition, and by doing that you get either bony union or a union by fibrous tissue, which, to all intents and purposes is bony. There are dangers in the application of Malgaigne's hooks; they were introduced before the antiseptic era, and their application has often been followed either by erysipelas and its attendant evils, or by extensive cellulitis. There is also the danger of troubles in the joint, suppuration, suppurative arthritis, etc., and for these reasons Malgaigne's hooks have never gained popular favor. Dr. Levis, of Philadelphia, modified Malgaigne's hooks, using instead of one double hook two single ones. I think his modification was, perhaps, an improvement, but most surgeons of this country are inclined to use Malgaigne's hooks instead of Levis's modification of them. I believe, however, at the present day hooks are seldom used in this country in the treatment of fracture of the patella, although, when antiseptically applied, I believe that either Malgaigne's hooks or Levis's modification of them are among the best means we have for the treatment of such fractures. Treves, a prominent surgeon of London, one who is usually right in any position that he takes and who is a very conscientious and able surgeon, believes it is better to cut down upon the bone at the site of the fracture, then bring the fragments together with Malgaigne's hooks, rather than to drill holes in the bone, passing through them silver wire or other sutures, holding them together in this way. This has been his practice for years, and he claims that it is better than any other method. Or we might adopt the other practice, of drilling holes through the bone, applying either silver wire or silkworm gut, carrying it well into the bone, and in this way holding the fragments in correct apposition until union takes place.

Still another way is to throw a ligature around the patella subcutaneously either by the Barker method or by the Kocher method. You have, gentlemen, often heard me quote Kocher, of Berne, who I believe is one of the most ingenious surgeons the world has ever known. His method of treating fracture of the patella is very ingenious, indeed, and has been followed by many satisfactory results.

Still another method, and the one I shall practise in this case, is

simply to make an incision down upon the fracture, and here we have a compound fracture, and stitch the periosteum of the fractured ends together. In doing this operation we will be very careful in our aseptic precautions; we will not only scrub the leg thoroughly, but we will shave it carefully, after which we will again scrub the part with a bichloride of mercury solution, then use ether to remove every possible source of infection. We will then make an incision down to the fascia surrounding the patella and attempt to bring the fragments together by stitching the aponeurosis of the muscle. You know that the patella is a sesamoid bone, developed in the tendon of the quadriceps extensor muscle, and I think by cutting down upon this tendon we can sew it together and accomplish just as much as we could if we drilled holes in the bone and brought the ends together by a silver wire or silkworm-gut suture. The disadvantages of drilling holes through the bones are that we go into the joint, and we leave an irritating suture perhaps to give rise to suppurative synovitis, which has in some instances resulted in the loss of the leg.

We have the consent of this patient to do anything that our judgment dictates, but he lives out of the city and will pass from our observation in a short time, and we do not care to put in any suture which will remain permanently in the tissues to rise up and give him trouble on the one hand, or destroy him on the other. So, while we must have an abiding suture, one which will last in the tissues sufficiently long, we do not wish to put in a suture that will not be absorbed at all. We have chosen for the purpose chromicized catgut; I prefer it to kangaroo tendon, and I also prefer it to any of the non-absorbable sutures. This will abide in the tissues sufficiently long to keep the fragments in coaptation until a callus has been thrown out and the fragments have been welded together in this way. We shall not be satisfied with this, however; we shall at the same time envelop the leg in plaster of Paris, and take every precaution to keep the fragments in position. You know we have a very powerful muscle here to control, the quadriceps extensor. We can say that the majority of these fractures are the result of muscular contraction, and we believe we are correct in stating that, just as in the present case, there is always more or less separation of the fragments. I can insert my finger between the upper and lower fragments in the case before us without any difficulty. When you meet a fracture of the patella, the result of direct violence, it is of an entirely different nature, as you may get a comminuted or stellated fracture, but where it is the result of muscular contraction it is, as a rule, transverse,

and such a line of fracture presents another difficulty in the treatment. It is far more difficult to treat a transverse than a longitudinal or stellated fracture, because you have the quadriceps drawing up the upper fragment, and the ligamentum patellæ drawing down the lower. There may or may not be an opening into the joint proper in fractures of this kind. Unless the fracture is complete all the way through the articular surface of the patella, it need not communicate with the joint, but in a case of this kind the joint really is opened, because there is so much separation between the ends of the fracture that there must be an opening down into the joint, the effusion also shows that there is, so it will make us all the more careful in our work. Then there is the bursa just in front of the patella, the prepatellar bursa; enlargement of it is often found in scrubbers, either men or women, who are on their knees more or less constantly. So this bursa may be ruptured in fractures of the patella. There is in this case so much separation of the fragments, even when the leg is completely extended, that I am satisfied if we did not do something with an old man like this that the separation would rapidly increase, and in the course of a year the fragments would be four inches apart. In a man of this age, of course, we cannot expect the reparative power to be as great as it would be in a younger subject. It is necessary to preserve absolute asepsis in operating upon the brain or knee-joint, just as we would in opening the abdomen, or even more so, and you will observe that I have disinfected my hands carefully by bathing in permanganate of potash and oxalic acid after a thorough mechanical cleansing with nail-brush and soap. All the instruments, as well as the hands of the assistants, have also been made perfectly aseptic.

The patient now being ready, you will observe I first make an incision two and one-half inches in length in the direction of the long axis of the leg immediately over the patella. We are now down to the capsule. I failed to tell you, but doubtless Dr. Holloway has explained, that the causes of so many bad results in fractures of the patella are due to the fact that the synovial membrane, the fascia, or the muscle itself gets between the fractured ends and prevents union. I believe the Röntgen rays will show that ununited fractures are often the result of a portion of the periosteum or other parts of soft tissue getting in between the fractured fragments. We have cut well down to the bone without going into the joint, at least without going into the articular portion of it. If you cut the lower part of the aponeurosis you will most likely not get into the joint; this sometimes

happens ; but, as a rule, you can avoid the joint proper. It is very necessary to have complete hæmostasis. I do not hesitate to say that I do not believe going through the bone into the joint with silver wire or silkworm gut would be legitimate in a recent fracture. It is only where other means less dangerous to limb and life have been tried and have proved failures that you should resort to such radical measures. It is justifiable in this case from the fact that this man does not live in the city, he is going away soon, and his age is such that we cannot expect to get a first-class result in any other way. There is some danger in the procedure, but, as I have told you, it is slight. You will observe that I have carefully sutured the fragments together, going simply through the periosteum with chromicized catgut, being careful to get accurate approximation of the ends of the bone. We will also use catgut for the skin suture, as we will put the leg up in plaster and keep it there for some little time. The external wound having been closed, we dust over it sterilized iodoform, then over this a layer of iodoform gauze, with a pad of iodoform gauze just above and below the patella, which will assist in maintaining the correct apposition of the fragments. Next we will apply several layers of plain sterilized gauze, and over all this an abundance of cotton, as we may have some swelling. We are now ready for the plaster dressing, which will be carefully applied to insure complete juxtaposition. The leg is held by an assistant in full extension. The plaster will be allowed to remain for two weeks, when it will be removed and the wound examined, then a second plaster dressing will be applied and left for a month. Remember what I have told you on several occasions, that none except the best grade of plaster should be used ; I think the best of all is the dental plaster, manufactured by the S. S. White Dental Company, of Philadelphia, Pennsylvania, and that is what we are using in this case. I see no reason why the result should not be perfect in this case. You will observe that we carry the plaster well up on the thigh and also down to the foot, as we desire to secure complete fixation of the limb. There is nothing that will hold the leg in position like a plaster dressing.

TINEA TONSURANS, INGUINAL HERNIA, CHICKEN-POX, ADENITIS, WHOOPING-COUGH, TALIPES VARUS, GONORRHOEAL OPHTHALMIA, MARASMUS, AND ECZEMA CAPITIS, WITH ESPECIAL REFERENCE TO TREATMENT.¹

CLINICAL LECTURE DELIVERED AT THE WESTERN RESERVE UNIVERSITY.

BY HUNTER H. POWELL, M.D.,

Professor of Obstetrics and Pediatrics in the Medical Department of the Western Reserve University, Cleveland, Ohio.

GENTLEMEN,—The lecture this morning will be noteworthy more for the variety of the cases presented than for their number or for any particularly interesting material. In fact, it will be more like a polyclinic than a simple clinic. It will go to show to what extent the pediatricist is a general practitioner as regards maladies rather than a specialist; and I will endeavor to emphasize what I have said from time to time that the pediatricist must not be regarded as a specialist in the sense that we must look upon specialists generally. The lecture will also illustrate the fact that the pediatricist will have to treat all varieties of troubles up to a given point before he calls in the specialist; and in my discussion of the various cases presented the treatment will be given which you, as family practitioners, will be expected to exercise rather than inflict upon the family the additional expense of a specialist,—a point which you will do well to make note of, both on account of your own reputation and for the benefit of the pocket-books of your patients.

TINEA TONSURANS.

CASE I.—The first case, which I introduce to you, illustrates a disease of the scalp, tinea tonsurans, which is found in young children, rarely ever in adults. It differs in no way as to its causation

¹ Stenographic report made especially for the INTERNATIONAL CLINICS, by Ellis B. Rhodes.

from the disease found in the adult as *tinea circinata*. It is found in the adult in the beard, and occasionally elsewhere in the hairy skin. We present to you three cases of *tinea tonsurans*. You will observe the similarity in appearance of these three cases. One has two large, round spots, the others but one. We have two other cases in the asylum.

This disease is caused by the *trichophyton* fungus. The spores of the *trichophyton* will be found upon examination. It is one of the most obstinate diseases of the scalp we have to deal with, and will test your patience to the utmost. Time and again you will think you have it subdued; time and again it will reappear. The specialist will be sent for, and he in turn will have many weeks of trial at it before it yields to treatment, such is its obstinacy.

The characteristic feature is the circular character of the patch, starting from within out, changing the appearance of the skin, getting redder and showing the furfuraceous desquamation that you see around the edges. The hair drops off, and close examination reveals short stubs of hair, from which, by epilation or plucking and placing them in liquor potassæ, you clearly see the spores of the *trichophyton* on the hairs, revealing the cause where you have doubt as to the nature. In any establishment where children are numerous this is almost bound to spread.

The treatment should be vigorous from the first. Shave the hair off the spot and immediately around it, wash thoroughly with soap and water, green soap preferably, and apply one of the following preparations. Perhaps the best to be mentioned and most efficient in the majority of cases is the oleate of mercury of five per cent. strength, rubbed in vigorously two or three times a week. Wash off between times with soap and water. Again, sulphur ointment may be applied, or the ointment of nitrate of mercury in equal parts with tar ointment. One or the other of these two ointments have been found in my hands to be most efficient.

So much, then, for this disease, which, perhaps, in our large cities will be carried to the dermatologist, but in the country towns certainly, and with most cases in the city, we should have equally as good results as the dermatologist, if we are persistent in our efforts and recognize the true nature of the affection.

TINEA TONSURANS AND INGUINAL HERNIA.

CASE II.—This child is three years of age. It was operated upon for cleft palate a year ago. Our object in exhibiting it this morning

has been to show the *tinea tonsurans*, and also a hernia. This baby is afflicted with complete inguinal hernia. The hernia is in the scrotum most of the time. Whether it was congenital or not I am unable to say. We may have either the congenital or the acquired form of inguinal hernia, which may be either complete or incomplete. My object in exhibiting the case is to impress upon you the importance of early treatment. With proper care and attention these cases of rupture can nearly all be cured without a radical operation. It is difficult to keep a truss in place in a child so young on account of the wetting of the clothing from urine and other causes, but it is desirable to make the effort. The best truss for a child of this age is the one which has the water-bag, consisting of a rubber sac filled with water and applied by means of the spring in the proper position. The truss should be put on and worn day and night. Children very early become accustomed to a truss, and object less than you would imagine. The truss should not have too strong a spring, should fit comfortably and be efficient.

Hernias in babies are often due to whooping cough. I will exhibit this morning a case of rupture due to whooping-cough. I have had a number in my practice. It is also due to phimosis from the straining in passing water, so that as a prophylactic against rupture, both umbilical and inguinal, it is desirable to perform circumcision or dilatation of the prepuce. Crying obstinately from any cause may produce rupture.

CHICKEN-POX.

CASE III.—This patient is suffering from chicken-pox, and as this is the close of the first day, the eruption is just appearing. This is the last of a series of thirty-five cases that we have had during the past six weeks. You will observe a large number of small papules. I also exhibit in this connection another case, which exhibits the declining stage of chicken-pox, showing the dark, desiccated scab ready to fall.

Chicken-pox, as you know, is, perhaps, the mildest of all the infectious diseases of infants. We do not purpose this morning going into the full discussion of chicken-pox. It occurs often without prodromata, and with little or no fever, as a rule, appearing as simple papules and becoming in a few hours vesicles, first on the neck and face, often simultaneously all over the body. The vesicles resemble very much the appearance obtained by pouring boiling water in drops upon the surface of the skin when they are thoroughly formed. It would be difficult to confound this with any other affection. Once in

a while it is mistaken for mild variola, but this should be of rare occurrence. The vesicles of chicken-pox are unilocular, while the vesicles of small-pox are multilocular. A needle introduced into the vesicle of chicken-pox empties it, while if placed in a vesicle of small-pox it would empty but a single compartment. The vesicle of chicken-pox is much more superficial than that of small-pox, and rarely, if ever, forms a pustule, and desquamates without a scar, as a rule. Occasionally you will see one or two scars upon the face from chicken-pox, often about the centre of the forehead, which is most frequently due to scratching on the part of the child.

Chicken-pox, as I have just remarked, is one of the simplest and mildest and one of the most contagious of all affections, rarely making the child sufficiently ill to go to bed, and a complication or sequela is unusual. Occasionally a scrofulous child, or one with some dyscrasia, may present complications and sequelæ. I have lost, within the past three years, an infant with broncho-pneumonia following chicken-pox, but this is exceedingly uncommon.

The treatment consists in relieving the fever and in prescribing a mild diet for a few days. The child should be quarantined for about three weeks to prevent the spread of the disease.

ADENITIS.

CASE IV.—Aged six months. This case is interesting from the point of differential diagnosis. You will observe the enlargement on the child's face. Perhaps most of you at once say we have a case of parotitis or mumps, and it was so regarded in the asylum. This glandular enlargement has existed unchanged for two weeks. Upon palpation it is hard and sensitive. It extends down the neck and nearly covers the parotid. It does not project upon the face nor lift up the lobe of the ear to the extent you find in mumps. It is a case of adenitis or enlargement of a lymphatic gland,—a condition quite frequently found in scrofulous children.

The treatment consists in the application of a simple ointment of the iodide of lead, equal parts, with lanolin, over the diseased glands. In children they often disappear much more frequently than in adults. It may become necessary to incise or possibly to enucleate the affected glands, which procedure is regarded to-day as the best treatment. Often you will see in young people a scar upon the neck, due to the inflammatory action of the skin, induced by suppurating, scrofulous glands which have discharged exteriorly. The color of the baby is pale and waxy, though otherwise free from disease.

The parotid gland is occasionally involved aside from the specific action which produces mumps. It may be due to sepsis or trauma, although these forms are quite rare in infants, though seen more frequently in adults in typhoid fever, and it may occur in pneumonia. Parotitis, therefore, does not always mean mumps. So commonly is the enlargement of the parotids due to the specific agent that produces mumps that it is ordinarily regarded as synonymous.

WHOOPIING-COUGH.

CASE V. shows several interesting features. We have had in the asylum, along with our epidemic of chicken-pox, whooping-cough. We will now present five cases of whooping-cough in various stages. The little one here exhibited is two years old, and is now in the third or declining stage of whooping-cough. It will probably give you an exhibition of the whoop in a few moments.

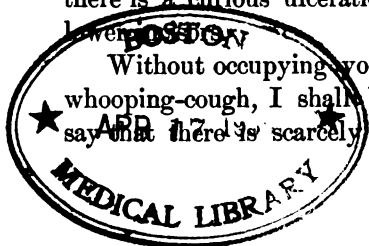
I mentioned, while upon the subject of rupture, that whooping-cough was one of the causes of both umbilical and inguinal hernia. This child is a sufferer from an umbilical hernia due to whooping-cough. It is not clearly visible at this moment, but while in the asylum it was clearly shown.

The treatment of this umbilical rupture is simple and efficient. A small hard-rubber button, slightly convex on one side, should be placed over the navel and held in position with a strap of adhesive plaster. This is clean and efficient, and ordinarily in from six months to a year cures the affection. I have been able to satisfy myself in many cases of the ease with which this can be cured.

This child is also suffering from broncho-pneumonia, which is one of the dangerous complications, or sequelæ, of whooping-cough, and a frequent cause of death. Whooping-cough is by no means a simple affection. It carries off its thousands wherever it prevails, and it occurs in all parts of the earth inhabited by man. It is regarded as third in mortality among children in England, but in this country the mortality is lower. In scrofulous or feeble children whooping-cough is an especially dangerous malady, and the younger the baby the greater the danger, other things being equal. At times, in addition to the broncho-pneumonia, we have aural complications. In this case there is a curious ulceration of the frænum of the tongue, due to the

lower lip.

Without occupying your time in discussing fully the treatment of whooping-cough, I shall briefly enumerate the chief points. I will say that there is scarcely a remedy in the Pharmacopœia which has



not been tried for whooping-cough. This is found to be the case in most diseases which are self-limiting, and in diseases which are incurable. It is especially true, however, of whooping-cough. As a rule, no drug can be relied upon in limiting the duration of the disease. Children are often injured by over-medication. Fresh air, free from carbonic acid; frequently changing the air of the room if the weather is unsuited for out-door exercise; burning sulphur in the room for an hour; having the child in another room, so that the germ, the micro-organism,—whatever it may be, and it is acknowledged that there is a micro-organism which has not as yet been isolated,—can be destroyed; proper diet to keep up the strength of the child; the inhalation of carbolized steam; and vaporized creolin I have used to advantage, the latter in little lumps that come for the purpose. Among the poor the neighborhood of the gas-houses had been sought for many years before we knew anything of the micro-organism, possibly for the sulphurous gases which are found there. Among the medicines for internal medication belladonna has for many years enjoyed a good reputation, and undoubtedly is of value in suitable cases. It was a special favorite of Trousseau, of Paris. It may produce an erythema, which has happened to the child which I now show you. Often the paroxysms are not relieved until the erythema makes its appearance. In the first stage of whooping-cough, however, simple expectorant remedies, such as you would give for any winter cough, are of use. You will not be able to diagnose whooping-cough until the second stage, or convulsive stage, with the whoop. The case would be suspicious, of course, in any family or neighborhood where whooping-cough prevailed, but it would not do for you to stake your reputation on a diagnosis given before the whoop. In the second or the convulsive stage you can lessen the frequency of the paroxysms and their force by a number of agents, so that you must by no means feel that treatment is useless in whooping-cough in consequence of the polypharmacy that has prevailed. In addition to belladonna, which should be given as has been mentioned, chloral and bromides, judiciously administered, especially towards night, to give due sleep, are both efficient agents. Occasionally opiates have to be given, but always with care, fearing to derange the digestive apparatus. Bromoform I have used with good effect; for a child four months of age, two drops may be given in a little sugar and water, repeated as the case may require. If pushed too far, it produces drowsiness, which must be avoided. Phenacetin is a valuable agent. Antipyrin acts well in certain cases, especially where there is fever, and enjoys a good reputation. The general management of the child

as to food and air must never be lost sight of. The dangers attending chilling of the chest must ever be remembered.

In CASE VI. I exhibit to you an infant seven months old, showing the erythema of belladonna upon the chest, because the child is under treatment for whooping-cough.

It also exhibits an obstinate stomatitis. It is not our purpose this morning to go into the discussion of stomatitis, and its various forms; there are some seven or eight divisions of this subject. This child is being treated, as regards its stomatitis, with chlorate of potassium, which is the most efficient medication for this form of disease, the mouth being washed with boracic acid and water. The ordinary measures looking to the improvement of the general health have been instituted.

It owes its cachexia to the existence of whooping-cough for two months. Infants lose so much of their food by vomiting in whooping-cough that they become weak and emaciated, making it necessary for the nurse to give food immediately after the vomiting spell, which occurs usually at the end of the paroxysm of coughing.

TALIPES VARUS.

CASE VII. is interesting in that it represents, in an infant five days old, a mild form of talipes varus. I exhibit this in order that you may save mothers from future orthopædists. It is very easy to cure these simple cases. It is rarely that you will find a case of club-foot which you cannot cure by simple means if taken within a few days of birth. Every week you postpone treatment adds to the difficulty of the treatment. Taken on the fifth day, the parts are pliable, and with simple treatment worse cases than this can be readily corrected. The simplest means should be employed. A simple stiff bandage, either by means of adhesive plaster around the foot and the leg, or a simple stiff bandage put on, with the leg in proper position, changed daily to avoid erosion, and instructing the mother or nurse to daily bring the foot into position, in conjunction with massage, will cure a majority of these cases. I will not go into the causes, or discuss further the subject of club-foot, but will leave it to the gentlemen in whose department it properly belongs. I desire to state, however, that there is no question but that most of these cases are due to constrained and faulty positions in the womb. The earlier the influence is exerted upon the part, whether foot or hand,—and we do have club-hand,—the more positive will be the nature of the deformity, and the later this influence of pressure is exerted, the less the deformity.

GONORRHOEAL OPHTHALMIA.

CASE VIII., aged thirteen days. Perhaps this case is more important for you to carefully consider than any we have exhibited. The child is suffering from ophthalmia, probably gonorrhœal, as the mother is suffering from gonorrhœa. You will observe as I lift the lids the amount of purulent matter that escapes, despite the fact that this eye was washed out fifteen or twenty minutes ago. Ophthalmia neonatorum it is sometimes designated, most frequently due to gonorrhœal infection at the time the head is passing through the vagina. Both eyes are involved, and the right eye shows infection for the first time this morning, and yet you observe how quickly large amounts of pus are formed.

I have said that perhaps this case is of more interest to you than any one of the cases as yet exhibited, for the simple reason that the affection is exceedingly destructive when not managed properly ; that it can often be prevented by prophylactic treatment or modified by efficient early treatment. In any case where you have a woman with a vaginal discharge about to be confined, whether specific or otherwise, it is well to pay close attention to that discharge by suitable douches, making use of the bichloride of mercury or creolin in your efforts to avoid infection of the conjunctiva. The eye is sometimes infected by the nurse in handling the infant three or four days after birth. Where it is due to infection at the time of birth, it usually makes its appearance on the third or fourth day, third day usually, and may appear on the second. If infected after birth, of course it depends upon the time of infection. In maternities it should be the rule to pay rigid attention to the eyes immediately after the birth of the child. With us no sooner is the child born, often before the cord is cut, the eyes are washed thoroughly with a clean cloth and boiled water before anything else is done. As a routine practice it should be done in your private work. See to it that suitable cloths are ready for the nurse to wash the eyes. Where there has been a discharge in the case, a two-per-cent. solution of nitrate of silver, after the method of Crede, should be put into each eye, two or three drops immediately after birth. This is an admirable method, and it is possible that the time will come when it will be enacted by the legislatures of the different States as a requirement upon all midwives and physicians. A large per cent. of the blind in our asylums owe their blindness to this affection. It has been recommended to use bichloride of mercury, a grain to the pint, but the chief point in the treatment is constant attention to cleanliness. The lids should be

everted, if necessary, every half hour, according to the abundance of the discharge; washed out with boracic acid and water, ten grains to the ounce; a little vaseline can be put between the lids afterwards. The eye having been thoroughly cleansed, a solution of nitrate of silver should be instilled every hour, alternating with the bichloride solution, and constant attention given to avoid involvement of the cornea as well as the deeper structures of the eye. The cornea is often destroyed by this form of ophthalmia, and staphyloma, which is so destructive to the eye, is one of the results. Routine prophylactic treatment is the most effective, or, if that has been omitted, prompt and efficient treatment in the early stages day and night. The application of ice-cloths upon the swollen eyes, washing out the eyes in the manner mentioned, and the occasional instillation of atropine or eserine, should give good results. Cleanliness, however, day and night, and the relief of the pressure which is produced in the eye by the spasmodic closure of the lids, is most important. It is astonishing what admirable results you will get by efficient and prompt treatment of eyes by this method. In a few months you may find perfect eyesight in this child. Do not, therefore, be discouraged by the appearance of the eyes.

Another interesting feature in this baby is the unusual appearance presented by the umbilicus, due also, I doubt not, to the gonorrhoeal infection. You will observe that in place of having the healthy umbilicus we have a prominent projection and upon the summit a polyp-like mass. This cord, in place of desiccating, as is normal and proper, has undergone gangrene. Normally, the cord drops off on the sixth or seventh day by a process approximating desiccation when properly treated. In this case there was no desiccation. The cord showed the unusual appearance that I have mentioned, a tendency approximating gangrene. You see now upon the summit this polypoid-looking mass, which is the result of this faulty process.

The treatment for this condition has been the application of boracic acid compresses and cleanliness. We will have eventually a good result. If necessary, nitrate of silver will be applied to the polyp, or we may ligate it if we think best. Steady pressure, by compresses, cleanliness, boracic acid, or the application of salicylic acid, one part to three of lycopodium, is very good.

In this connection I desire to impress upon you the proper treatment of the umbilical cord. Always use aseptic ligatures. Do not depend upon any that may be handled by the careless nurse. Apply borated cotton to the cord, tie firmly, turn over to the right side, and

apply a bandage. If the cord is fat, as was the case in our patient, be even more than ordinarily careful. After cutting the fat cord I advise you to squeeze out the Whartonian jelly, or before ligature pinch deeply into the cord so as to separate the tissues and then ligate. This prevents hemorrhage. The fat cord is more apt to bleed after ligature than the small or lean cord, because the calibre of the vessels is not constricted to the same extent as in a small cord. Hemorrhage is not frequent when these precautions have been observed. Antiseptic treatment of the cord is absolutely necessary.

MARASMUS.

CASE IX., five months of age, represents a case of marasmus following chicken-pox in a baby artificially fed. You will please note how reduced this baby is with entero-colitis. The temperature at present is 102° F.; the bowels move freely. It is no uncommon thing to present to this class cases of marasmus. Upon former occasions we have shown some remarkable examples. In asylums, where babies depend largely upon artificial food, we have numerous cases of marasmus, or general atrophy, and this infant is a fair example of this common condition. We have before gone into the full discussion with you of infant feeding, and have especially dwelt upon the horrors of artificial feeding as compared with mother's milk. In our asylum we are brought daily into contact with the fearful results and large mortality incident to artificial feeding. In this child we cannot say we are very hopeful. Chicken-pox, scrofula, entero-colitis, and dependence upon the bottle! What hope can one have for such an infant? In the absence of the breast, if such a child could have carefully-prepared or modified milk, after the method of the Gordon-Walker process, devised by Rotch, of Boston, with constant care as to its food, or with a single nurse, well trained, we might have some hopes. With pasteurized or peptonized milk, with the cream and whey mixture, of which you have heard, with the casein properly adjusted, cream and whey and white of egg, the mixture of which I have so often advised you, where the proteids in the form of casein are obnoxious to the stomach, good results may be obtained. But it is impossible for us to adopt such a method with the great number of children in our crowded building. We have but the results seen under similar circumstances, a crying shame, a blot upon our civilization. In my opinion it may be corrected, as has been done to my knowledge so well in certain places; and especially do I recall with pleasure a visit to the large infant asylum in Stockholm, under the patronage of the king

and queen of Sweden, where a hundred wet-nurses cared for two hundred children, each nurse bound for eight months to the care of her illegitimate child,—beautiful babies, equal to those you see in private homes. The mortality increases under our vicious system, our so-called caring for the discarded infants or illegitimate infants that are thrown upon us, a serious question for the socialist and philanthropist of this country. I know whereof I speak, as eleven years' experience with over two thousand such infants gives me a right. I speak *ex cathedra* on this subject.

ECZEMA CAPITIS.

CASE X. represents another disease of the skin, simple eczema capitis. You have had eczema brought before you so many times by the dermatologist that I simply present this case in this very young infant to speak a few words as the family practitioner in this matter. This is a comparatively mild case of eczema, and I have no doubt it can be rapidly cured by proper treatment, which is not true of very many cases of eczema. I saw yesterday and will see to-day an infant four months of age that I have been treating since it was a week old. The mother was afflicted with eczema at the time of birth, thus giving the child an hereditary right to eczema. The child I allude to has general eczema from head to foot, and has required the constant attention of a first-class trained nurse in addition to a wet-nurse (the mother not being able to nurse the child) and the mother to keep the child comfortable and alive. If it had not this attention and care it would doubtless have died. The case that I show you is mild. We may have eczema capitis and eczema simplex, the two most common forms, seen in babies at the breast as well as at the bottle. It is a disease which is obstinate, though very much can be done for the comfort of the child and the course of the disease abbreviated. I have known it to reappear again after an absence of two or three years. I have known it to reappear at intervals of a few years throughout life, certainly up to the age of forty, showing the obstinate nature of eczema in certain cases. I have seen it in various members of a family. As to the best treatment for eczema there is a diversity of opinion, as in all diseases. The application of soap and water should be thoroughly and efficiently made. Not too much water should be used afterwards, as eczema in the later stages is made worse by the application of water. If the eruption is very thick upon the head, as you sometimes see it in cases of crusta lactea that have been neglected,—the purulent discharge appearing like lava running from a volcano in chronic cases among the poor,—

the best method is to apply a poultice over night, after having rubbed vaseline in thoroughly to soften the scab, and retain it in place by a night-cap. The next morning you can lift it up like a mould, leaving the shining scalp beneath. Then you are able to get at the disease. As a rule, in eczema, whether eczema capitis or eczema simplex, where there is much moisture characterizing the eruption, powders, in my opinion, are to be preferred to ointments. Where it is dry, ointments are to be preferred to powders. Of the powders I prefer one made of equal parts of lycopodium and boracic acid, thoroughly applied with a cotton ball or blown upon the surface. Occasionally, oxide of zinc, one part to four parts of lycopodium, may be used. Of the ointments, the benzoated oxide of zinc, in equal parts with lanolin, I like. In general eczema, such as the case I mentioned in private practice, in order to keep the child comfortable, I have it enveloped in a roll of gauze which has been dipped in lime-water and olive-oil. The itching is so intense that the child's hands are kept in bags up to the shoulder to prevent it from tearing its face. Occasionally doses of bromide are efficient, especially to secure sleep. I rarely find it desirable to give internal medication in infants so young, and rely entirely upon local treatment.

A CASE OF TUBERCULOSIS OF THE BREAST TREATED BY EXTIRPATION.

BY CHARLES GREENE CUMSTON, B.M.S., M.D.,

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THE following case occurred at the Butini Hospital, in the surgical service of Dr. E. Kummer, in Geneva, Switzerland, during the four years that I had the honor of being his assistant.

The patient, a young girl of sixteen, from Savoy, belonged to a non-tuberculous family. Her father died of pneumonia, while her mother was alive and in good health, as was also a brother, who was then twenty-one years of age.

The patient herself enjoyed excellent health during her childhood, and had no sickness, excepting measles, from which she recovered nicely, although she takes cold easily in the winter; but she had never had hæmoptysis, nor any other signs of tuberculosis.

She had menstruated for a year and a half. The menses were irregular during the first six months, and then they stopped, and did not appear again until March, 1889. When fourteen years old the patient had some enlarged glands in both sides of the neck, but these did not suppurate, and wholly disappeared spontaneously. A short time after this she had fissures in the nose and on the lips, which also got well without treatment.

At the end of June, 1889, the patient had some pain in the left axilla, for which she could ascribe no cause. She examined herself, but found no enlarged or tender gland. About three weeks later the patient noticed that a swelling had occurred in the left breast, situated in its superior external quarter. This swelling produced rather sharp pains, as well as a slight rise in temperature; but, nevertheless, the patient continued to work. After a few days the abscess was opened by a physician; the cicatrix was still visible.

This operation gave her much relief. The pus which was evacuated, according to the description of the patient, was quite thick.



FIG. 1.—Tubercular ulceration of the breast.

Little by little the wound healed, but a second abscess formed above the nipple, which was also incised, and from the wound a grumous, serous pus came away for a long time, and finally the fistula closed. A third abscess opened just beside the second one, was similar to the others, and a fistula resulted. This fistula was present when we saw the patient. The nipple was drawn upward and outward, and was more projecting than on the right breast. At the same time (July, 1889) the patient noticed that the anterior border of the left axilla began to retract, but caused no pain. The girl had felt pretty well, other than a suppurating otitis which occurred during the month of November of the same year, and which was cured by medical treatment.

Auscultation and percussion of the lungs revealed no abnormal condition. The abdomen was also found normal, as well as the urine.

On examination the breasts were found very well developed for a person of sixteen. The right breast was normal, while the left was slightly smaller and more relaxed. The left nipple retracted upward and outward, was very much less projecting than that on the right side; it was even retracted and sunken. Above it a brownish-colored cicatrix of the first incision was noted; above this several depressions corresponding to the orifices of the fistulæ were to be seen. These depressions were irregular, with scalloped borders and a grayish-colored bottom, and from them a sero-grumous liquid was excreted. The skin which surrounded these fistulæ was then of a violet red and undermined; more outwardly it was the seat of a slight hyperæmia.

Palpation demonstrated a hard infiltration, which was lumpy in some places, corresponding to the fistulæ and to the parts covered by the changed skin. The infiltration continued into the axilla, in which a large group of enlarged glands were found covered by a thin and adherent skin. Other indurated parts were found in the superior internal quarter of the breast, at which place the presence of two rose-violet-colored cutaneous spots was remarked. As to the lower part of the breast, it was found healthy.

Operation having been decided on, it was performed January 18, 1890. The patient was chloroformed, and all antiseptic precautions were rigorously followed. The integuments were excised, beginning with the external fistula of the breast, and the incision was prolonged into the axilla. A tract filled with fungosities was thus discovered, which extended from the external portion of the breast to the anterior border of the axilla. A careful excision of all these fungosities was made; they looked very much like tubercular tissue. They were made up of grayish nodules scattered through a brownish-colored substance.

A second incision was made, uniting the internal fistula to the external one, and a new tract of fungosities was again laid open, which were also excised with much care. These fungosities entered into the glandular tissue, which necessitated the removal of the superior external part of the mammary gland.

A third incision united the above-mentioned cutaneous spots, which were seated at the upper and internal aspect of the breast. Here again we fell upon fungous foci, but these did not involve the gland, and were simply seated in the subcutaneous cellular tissue. They were excised in the same manner as the other foci, until nothing but healthy tissue was left.

In the left axilla, where the large group of glands was found, curettement was practised, and in order to do this the first incision carried from the breast was prolonged up to the internal border of the coraco-brachialis muscle. By doing this the upper part of the brachial vein was easily brought to view, but the axillary vein was so adherent to the glands that it could not be isolated. Ligation was necessary. It was the same for the axillary artery. A ligature was placed on it above the bifurcation of the median nerve.

As the nerves could be separated, they were in no way hurt. In this manner all of these glands, which were for the most part caseous and presenting all the macroscopic characters of tuberculosis, were completely removed; the wound was very carefully disinfected with sublimate, and was covered by a simple layer of iodoform gauze, over which sterilized gauze was packed, and the whole covered with a bandage, so as to produce perfect compression.

A slight elevation of the temperature occurred the second day, but was rapidly brought down by means of boracic acid compresses, which we substituted for the primary dressings.

On the seventh day a secondary suture of the wound was made, which was followed by union by primary intention, and on the 3d of February, fifteen days afterwards, the patient left the hospital. She was seen on February 7, at which time it was noted that the radial and ulnar pulse were easily felt at the wrist. The patient was seen on May 24, 1890, and it was then found that she was in the best of health, and presented no trace of a recurrence, either in the breast or in the axilla. The left breast was only slightly smaller than the right, while its nipple was a trifle retracted upward and outward.

In order to obtain a still more evident proof of the tuberculous nature of this affection, on the day of the operation a guinea-pig was inoculated. After shaving its abdomen and thoroughly disinfecting it,

first with alcohol and then with sublimate, the animal was inoculated on each side of the linea alba. On one side pieces of the fungosities removed from the fistulous tracts of the breast were introduced under the skin of the animal, while pieces coming from the axillary gland were inserted under the skin on the other side. The small wounds caused by this inoculation were sutured with silk.

Unfortunately the animal died on February 1, from an intercurrent disease, so that the tuberculous infection had not the time to become manifest. Both the abdominal wounds showed no inflammatory reaction; no axillary or inguinal glands were found enlarged, and no trace of tuberculosis of the internal organs could be demonstrated.

The photograph represents the patient just before the operation.

THE SYSTEMATIC TREATMENT OF PERTUSSIS BY LOCAL AND GENERAL MEASURES.

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DESPITE the enormous literature which has grown about the treatment of whooping-cough, I make this small contribution out of my own experience, in the hope of its proving of some use. A few years ago this disease prevailed quite extensively hereabout; my own children were infected as well as those of certain families with whom I stood on unusually intimate terms: hence I was stimulated to experiment fully and cautiously. At my clinics at the Children's and Polyclinic Hospitals (out-patients) all cases were subjected to similar measures. Starting out with the assumption that pertussis begins as a local disorder, involving the upper air-passages, I felt that it was worth while to treat it locally by thorough cleansing, asepsis, and such substances as might be expected to modify the growth and extension of the infectious principle. In the same way it seemed reasonable to take cognizance of a probable toxin inhabiting the digestive tract and influencing the blood. Not until the possibility of medication directed to these sources was exhausted did it seem justifiable to make use of merely expectorant and antispasmodic remedies. I will, without rehearsing tediously my various steps, recount the procedures that were most fruitful in results, and then pass on to the various special efforts used to meet complicating and baffling conditions. One of the first desiderata is to have ample and frequent opportunity of watching the sufferers, applying and modifying remedies from hour to hour. Children who would submit to a thorough spraying of their nostrils and trachea with the alkaline antiseptic washes soon experienced such relief that they welcomed it. Smaller children should be held, even though they do not resist. The position taught by Dr. Walter Freeman as suitable

for most naso-pharyngeal manipulations (including intubation) is admirable beyond praise.

The child's head should be inclined a little forward of the horizontal, so that the precipitated fluids may readily flow out of the nostrils or be expectorated. The specific gravity of the fluids should be brought up to that of the serum of the blood, thus lessening irritating properties. A cleansing of this sort done from one to four or five times a day, without other measures being used, reduced the number and severity of the paroxysms one-half. If supplemented by a spray which induced a contraction of the mucous follicles, such as antipyrin, menthol, or the like, still further relief was afforded. When the menthol was suspended in an oily medium, in some instances it was better and in some not. Where the tonsils of the sufferers were enlarged and engorged, the treatment of these by cleansing out the crypts with a blunt hook and applying chromic acid was oftentimes of advantage. I even went so far as to operate upon several by tearing away the encircling fibrous bands and applying astringents, a procedure which in my hands frequently proves advantageous for the curing of these conditions. Where there was a hypertrophic state of the mucous surfaces in and about the naso-pharynx, these were likewise carefully treated with astringents and stimulating substances, weak solutions of nitrate of silver, iodine in glycerin, glycerole of tannin, resorcin, and the like. Aristol and thymol di-iodide and other antiseptics seemed to have no direct effect, and yet were of value when applied after operative procedures. I could not assure myself that peroxide of hydrogen or pyrozone exerted any special influence. One of the most soothing applications is the extract of hamamelis, that known as Pond's Extract being about the best, and somewhat better when diluted with equal parts of a saturated solution of boracic acid.

There was usually noticed considerable relaxation of the mucous surfaces along with evidences of mechanical irritation, due in great part to the repeated shocks of coughing. This alone induced a sensitiveness and aggravated the length and severity of the paroxysms. Children treated with simply the cleansing spray and light applications of an astringent were conspicuously relieved. A favorite astringent with both the physicians and the patients themselves is an old-fashioned but elegant gargle devised by the late Dr. Goddard, known as "pomegranate, roses, and alum." This was applied on a cotton swab.

So much for a general summary of a host of various substances used. For the relief of the paroxysm itself many things were tried and found wanting. I have distinct fear of using cocaine, and there-

fore applied it most cautiously, and even then was disappointed in its effects. A spray of one to one thousand of cocaine, and one to two hundred of antipyrin, in diluted chloroform-water, was found useful in a baby which was thrown into a "locked spasm," with marked cyanosis, and was well tolerated every hour during the day. The incautious use of cocaine caused one of my own children to grow exceedingly faint, with the pulse scarcely perceptible at the wrist. Cocainizing the pharynx far down with a swab failed to relieve the spasm, as a rule. In the case of a very young baby, who nearly died during the paroxysm and whose constitution was grievously shattered, relief was obtained best by causing it to inhale about a drachm of one part of nitrite of amyl and one part of chloroform to six of ether thrown on a handkerchief. A better proportion proved to be one part of nitrite of amyl, three of chloroform, to five of ether. This certainly saved life many times, and was used with great effect with older children.

Concerning the very brilliant claims made by those who advocate the local use of quinine I cannot speak with much enthusiasm. The application of this as a spray drove away permanently all those on whom I used it. I saw somewhere the suggestion that the wine of ipecac applied as a spray was valuable, and found that it produced some good effect. Touching the use of powders, they were nearly all disappointing, difficult to apply, and very much disliked. I have used finely powdered calomel in nasal diphtheria with flattering results, but I was unable to see that it produced any good effect in pertussis. The internal administration of quinine is certainly of enormous efficacy, but not such as would warrant our doing without other measures, notably the local ones. Long ago, as an assistant of the late Dr. John M. Keating, I remember the excellent results he got with the use of the sulphate of quinine. My own results were a trifle better by using the muriate by the mouth or the bisulphate. I found that children took quinine very readily in the flattened pills, shaped like red blood-corpuscles, especially when these were comparatively small and covered with chocolate. It is easier to give five one-grain pills than one five-grain pill; it is easier yet to induce a child to swallow little half-grain globules attractively covered. For the dispensary patients there was little difficulty in inducing them to swallow the quinine in a mixture of elixir of licorice, or yerba santa, or the simple aromatic elixirs, or curaçoa. To obviate the disagreeable after-effects of quinine, it is effective to dissolve the salt in dilute hydrobromic acid. Of the various antispasmodics I found hyosine hydrobromate the best in from one fifteen-hundredth to one one-thousandth of a grain frequently repeated.

Along with that may be given one twenty-fifth of codeine. Hyoscyanine is also very effective in the same dose as the hyoscine hydrobromate. Either of these may be increased, indeed should be increased, until their physiological effect is evidenced by some drying of the throat or flushing of the face. The same is true of atropine, which is almost as influential. A little pill which proved very satisfactory and was readily taken by children contained, of atropine a thousandth; morphine, one twenty-fourth; calomel, one twenty-fourth; and strychnine, one five-hundredth. The bromides generally were failures. That which relieved my own children most at night was the frequent repetition of Dover's powder, one grain, with calomel, one-eighth of a grain. Bromoform has not been very satisfactory in my hands; not that it does not exert a good effect upon the cough, but that better results are had from the combination outlined above.

As stated in the beginning, it is imperative, first, to begin treatment as early as possible, especially the local measures. In certain instances I was of the opinion that beginning attacks were aborted. Second, it seemed of value to meet the toxin by small repeated doses of calomel with bicarbonate of soda or boracic acid, or both. Third, the diet should be simple, carefully prepared, given in small amounts at a time, so as not to overload the stomach or overtax the digestive capacity anywhere. If vomiting occurs, food should be offered soon after,—a half-hour or an hour,—for very rarely is it accompanied by nausea, and starvation is thus easily induced. For very considerable vomiting in older children I occasionally use small pills of cocaine, a sixtieth to a fortieth of a grain. Fourth, the local measures, as outlined above, must be promptly, thoroughly, and frequently applied. Fifth, children afflicted with pertussis should live all day in the open air, adequately clothed. If the weather be excessively inclement they may play about in a room with all the windows open, clothed as if for the open air. Sixth, the question of climate is a relative one which can be met within four walls if the proper conditions be maintained. This can be done by a proper temperature and relative humidity. Too great dryness, if artificial, is distinctly objectionable. Sometimes the sea-shore is best, but more often a wholesome piece of woodland will suffice, especially if it consists largely of the conifera. Dry, sandy soils are much better than alluvial ones, but there should always be an abundance of out-door air both by night and by day, and as little as possible of fatiguing conditions, such as school tasks induce.

One word as to the frequent complication of severe bronchitis and broncho-pneumonia which is so liable to arise in the course of whoop-

ing-cough. The time-honored and much-tabooed mush poultice I find of much avail as a means of relief and comfort, applied as often as from two to four times in the day. My custom is to order a large hot poultice to be placed over both shoulders and the upper part of the back and the child laid down upon this and left from three-quarters of an hour to an hour. It will soon exhibit great contentment and usually fall asleep. This is then removed and the skin is thoroughly rubbed both back and front over the entire lung surface with some stimulating lubricant, as turpentine and oil, camphorated oil, or oil of amber or "camphor-ice." Then the whole chest is swathed, front and rear, in cotton-wool thickly laid on. In from two to four hours this is repeated, and kept up from two to four days, or until all signs of consolidation have disappeared.

For the bronchitis, so generally present, antipyrin is an excellent expectorant, but no specific for the disease.

Apomorphia is also useful.

Antispasmin is recommended (Frühwald).

The ammonium salts seem of little use.

Iodide of potassium is helpful along with the atropia or hyoscine.

Heart disturbances are common, such as dilatation of the right heart and stasis, and require strychnine and the cardiac tonics.

A serious sequel of pertussis is gastro-intestinal disturbance, leading to anæmia. The earlier and more thoroughly the disease is controlled the less will be this last danger.

Medicine.

A CASE OF CARDIAC HYPERTROPHY WITH DILATATION DUE TO ADHERENT PERICARDIUM, WITH REMARKS ON DYSPNŒA.

CLINICAL LECTURE DELIVERED AT THE CITY AND COUNTY HOSPITAL, SAN FRANCISCO.

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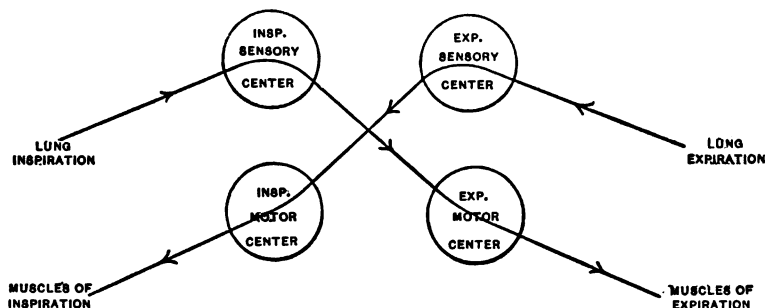
GENTLEMEN,—The patient is a native of Switzerland, J. D., by occupation a laborer, who was admitted to the hospital March 17. The family history is fairly good. Patient came to America at the age of twenty-two, he now being thirty-two, and has been in California for several months. He does not know whether he has had the usual diseases of childhood, but has had rheumatism several times, the first attack being fifteen years ago, and has returned at intervals of about three years. Most of the joints of his body have been affected with rheumatism, but only the ankles have ever become much swollen. He had a severe attack of diphtheria about ten years ago, and was troubled with sore throat for a long time thereafter. He does not remember having had other diseases. During the last five years he has used but little intoxicating liquor; before that time he did so to excess. He denies all specific history. Two weeks before entering the hospital he caught a cold, affecting chiefly the nasal passages; at the same time he complained of headache and vague pains throughout the body. Since that time he has complained of shortness of breath, especially upon exertion. The shortness of breath upon exertion he noticed for some time previous, but that trouble was aggravated after catching cold. When he came to us he had a slight cough with very little expectoration. He has had occasional attacks of shortness of breath. During the time he has been with us he has been feeling about the same. At one time he coughed

up a slight quantity of blood during several days, the coughing of blood being preceded by a chill and high fever, and the high fever continuing for several days. This coughing up of blood continued for a short time. During the latter portion of the period during which the blood was raised the sputum was not pure blood, but simply brownish mucus. The examination that was made at that time, besides those things which you will find upon your examination, showed a slight dulness posteriorly over the lower portion of the right lung; auscultation at that time showed bronchial respiration and a few râles. The diagnosis that was made then was hemorrhagic infarction. Lately, during the last two months, there has been irregular fever, as is shown by the fever chart, which during the last week has become rather higher than it had been before. The appearance of the patient has become a little more livid, and the dyspnoea that had been present before upon exertion only became evident while he was at rest. You see how dyspnoic the patient is. You see how rapidly and how laboriously he seems to breathe. In addition to the difficulty of breathing, the term dyspnoea is also applied to increased frequency of breathing. Breathing is produced by the movements of the respiratory muscles,—namely, the intercostal muscles and the diaphragm, and, in addition, under certain circumstances, those muscles which raise the thorax that are called the auxiliary muscles of respiration.

Under normal circumstances we breathe about eighteen or twenty times per minute. There must be some machine in the body that automatically regulates the number of respirations that are made. There is a little centre in the medulla oblongata that is called the respiratory centre, which rules over this function of respiration. The moment that you destroy the respiratory centre, as it is called, in the medulla oblongata, respiration ceases. Respiration consists of two acts,—inspiration and expiration,—and, in order that respiration should go on normally, this centre in the medulla oblongata that rules over the function must bring about inspiration and also expiration. This centre in the medulla oblongata is a very wonderful organism. It consists of four portions, that I may term the inspiratory sensory centre, and the expiratory sensory centre, the inspiratory motor centre, and the expiratory motor centre. (Fig. 1.) Now, this expiratory sensory centre is connected with the lung by means of the pneumogastric nerve, and when the lung is in the condition of expiration the pneumogastric nerve becomes irritated thereby, the irritation extending up to the expiratory sensory centre. The irritation accumulates in this expiratory sensory centre until a discharge from the ganglionic

cells in that centre occurs, the nerve influence passes down from the expiratory sensory centre to the inspiratory motor centre, a discharge from the ganglionic cells there occurs, and the nerve influence passes to the muscles of inspiration, and the result is that the inspiratory

FIG. 1.



The mechanism of respiration.

muscles act and the lung becomes inflated. When the lung has become inflated, or while it is becoming inflated, an irritation of the other fibres of the pneumogastric nerve occurs, and this nerve-influence passes to the inspiratory sensory centre in the medulla oblongata and a discharge of the nerve-force in this centre occurs; this discharge passes down through fibres that pass to the expiratory motor centre, a discharge occurs in this expiratory motor centre, the nerve influence then passes down to the muscles of expiration, and the act of expiration occurs. So, then, the state of expiration produces a reflex action through this centre of respiration, and the consequence is the act of inspiration, and the state of inspiration causes a reflex action passing through this centre, occasioning the act of expiration. So, then, the cause of inspiration is the state of expiration, and the cause of expiration is the state of inspiration. The number of respirations per minute may be increased in two ways. One way is by increasing the irritation, and another way is by increasing the irritability of the respiratory centre. Let me explain this to you. For the time being, and for the purpose of explanation, let us suppose that the nerve-force is a nerve fluid, as it is called (this is not true, you understand; you know that it is simply a change in the molecular condition of the nerve-tissues; but, for the purpose of illustration, let us suppose the nerve-force to be a fluid), and let us suppose that the ganglionic cells are bottles into which this fluid flows, and that the nerve-fibres are tubes through which this fluid passes. Now, these ganglionic cells at rest are in a condition of what is called equilibrium.

This equilibrium is either a stable equilibrium, so that a large accumulation of fluid is necessary in order to overcome it, or a condition of unstable equilibrium, so that a very small accumulation of fluid suffices to produce the discharge. As I said before, depending upon the condition of equilibrium, whether it be stable or unstable, the quantity of fluid that must accumulate before a discharge occurs varies. Hence we can increase the rapidity of these nerve-discharges either by causing more fluid to flow in in a given time, or by changing the condition from one of stable equilibrium to one of unstable equilibrium. That means if a greater quantity of irritation of the lung-tissue occurs, a greater quantity of this nerve fluid passes through the centre in the medulla oblongata, and the result is increased frequency of respiration. For example, if we inhale some irritating gas, like chlorine gas, the result is frequent respiration. Or if a change occurs in the medulla oblongata, whereby the irritability of the ganglionic cells is increased, we have increased frequency of respiration. The presence of carbonic acid gas and the diminution of oxygen in the blood produce an increased irritability of the ganglionic cells, but it is especially the lack of oxygen in the blood which has that effect. The lack of oxygen in the blood, as I said before, increases the irritability of the ganglionic cells. Hence, when we have blood passing to these ganglionic cells which contains a large quantity of carbonic acid and a small quantity of oxygen, the irritability of these cells is increased, and we have increased frequency of respiration. On the other hand, you can produce a diminished irritability of these ganglionic cells by the reverse of the process. If you charge the blood with oxygen the consequence is that diminished frequency of respiration occurs. If you take an animal and charge the blood with oxygen the result is that the animal ceases to breathe for a time. The condition of what is called apnoea results. This is due to the fact that the irritability of the ganglionic cells at the medulla oblongata is diminished by the presence of the large quantity of oxygen, and, until that excess of oxygen is used up and the normal irritability of the ganglionic cells returns, there is no respiration. Again, there are certain poisons which diminish the irritability of these ganglionic cells, as, for example, opium. You know that in cases of opium-poisoning one of the very prominent symptoms is the diminution in the frequency of respiration. Instead of the respiration being eighteen or twenty it goes down to five or six per minute. That is due to the diminished irritability of these ganglionic cells occasioned by the effect of the opium upon them.

Now, under normal circumstances, the irritability of these ganglionic cells is such that, with the ordinary irritation that occurs in the lung, a discharge of the nerve-force occurs about eighteen times per minute. Under ordinary circumstances that which produces an increased frequency of respiration is usually an increased irritability of these ganglionic centres in the medulla oblongata, and this increased irritability may be occasioned in the first place by the presence of an increased quantity of carbonic acid and the diminution of the quantity of oxygen in the blood. Secondly, it may be produced by increased heat. I am simply quoting the physiology to you ; I am simply telling you the result of experiments that have been made directly to test this question. If you warm the blood which passes to the brain, leaving the rest of the blood of the body perfectly intact, the result is increased frequency of respiration. For example, suppose you surround the carotid with warm water, so that the blood that passes to the brain is warmer than under normal circumstances, the consequence will be an increased frequency of respiration. Diseases of the medulla oblongata are likewise attended with increased frequency of respiration. Pathological changes, either functional or organic, in the medulla oblongata, are apt to produce this increased frequency of respiration : such a functional trouble as, for example, that which sometimes occurs in hysteria ; secondly, that which normally occurs under the influence of certain emotions. You know that in certain emotions the breath comes short and quick. That which acts the most frequently, however, is the altered condition of the blood. We may have an alteration of the blood produced by any cause which prevents the air from entering into the lungs as it normally should. For example, stenosis at the larynx, stenosis of the trachea, obstruction of the bronchi, diseases of the lungs of various kinds, diseases of the pleura, a pleuritic exudation compressing the lung ; furthermore, painful affections that diminish the extent of the movements of the thorax. Or the aeration of the blood may be prevented by any cause which prevents the blood from passing through the lung in sufficient quantities. In order that the blood should be properly aerated there must be sufficient air, and likewise sufficient blood. Any cause which prevents the passage of the blood through the lung in the normal manner will prevent the proper exchange of gases, the excretion of carbonic acid and the absorption of oxygen. Any disease of the heart whereby the action of the heart becomes feebler than normal, or any change in the lung whereby the resistance to be overcome by the heart is greater than normal, may so

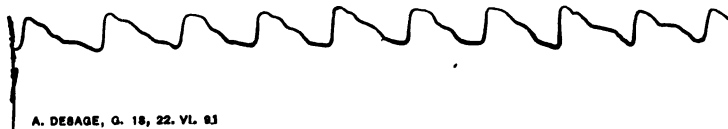
interfere with the circulation that the blood does not become properly aerated. When from any cause whatever there is an increased production of carbonic acid in the body, the same effect is produced. If that production of carbonic acid is very great, as, for example, upon muscular exertion, the quantity of carbonic acid that is formed and the quantity of oxygen that is consumed are far greater than is normally the case. The consumption of oxygen may be so great as to produce a decided dyspnœa, as you probably have experienced personally. As remarked before, in fever a similar increased consumption of materials of the body, an increase in the quantity of oxygen utilized occurs. If from any cause whatever the quantity of hæmoglobin in the blood is diminished, then the quantity of oxygen which can be taken up by a given quantity of blood is less than is normally the case, and the effect upon the body so far as the oxygen and carbonic acid are concerned is the same as if less oxygen got into the lung and less carbonic acid got out. So that, to recapitulate what we have gone over, we may have dyspnœa from a diminished entrance of air into the lung; secondly, from a diminished quantity of blood passing through the lung; thirdly, from an increased production of carbonic acid and increased consumption of oxygen in the body; and, fourthly, from a diminution of the quantity of hæmoglobin in the blood.

If you had a dyspnœa produced by disturbance of the passage of the blood through the lung,—in other words, a dyspnœa caused by circulatory reasons,—you would be apt to find cyanosis, and, furthermore, œdema of the lower extremities. In other words, you would be apt to find other signs of circulatory disturbance. If œdema was produced by some obstruction to the entrance of the air, you would find in addition to the dyspnœa a cyanosis, for the same cause which produces the dyspnœa would likewise produce cyanosis. If the dyspnœa were due to increased combustion of the body, you would not necessarily find œdema or cyanosis, but you would be more apt to find a capillary congestion or redness. If it were due to change in the hæmoglobin, you would find pallor. Now our patient here in addition to dyspnœa shows marked cyanosis, and he likewise shows œdema of the lower extremities, extending up as far as the knees, and you see how very marked the œdema is. You see how it pits upon pressure. This would call your attention to the heart. The dyspnœa in this case is far greater than it would be if it were all produced by the same cause. That is to say, the œdema is less than we would expect it to be if the same cause produced both œdema and dyspnœa. The dyspnœa is pro-

portionately greater than the oedema and than the cyanosis. So then in all probability we will find some disturbance of the lung in addition to that of the heart. Those of you who have seen the chart of the fever will remember that this morning the temperature is much less than it was on Friday, when the case was first presented to you. This morning it is 99.5° F.; on Friday, when he was presented to you, the temperature was 100.2° F. There is, then, at present no fever observable, and yet the dyspnoea is about as marked to-day as it was on last Friday, so that the fever cannot explain the dyspnoea. As you look at this man's neck you are struck with the marked pulsation on each side and also with the engorgement of the veins. You observe the thorax is normal in form; it is moderate in length; it is broad; it is fairly well arched, and it is moderate in depth. There seems to be no inequality, and when you put your hand upon the thorax when he breathes you will observe that the two sides move equally. You hear over the right apex posteriorly dulness, which extends as far as the first dorsal vertebra. You observe the difference between the two sides. Anteriorly, at the corresponding height, you hear the same dulness on the right side. At both apices you hear bronchial respiration. Over the rest of the lung we hear vesicular respiration. The edge of the lung on the right side is at the fifth rib, and you hear that the edge of the lung moves upon respiration. You observe that the edge of the lung on the right side moves upon respiration. The area of cardiac dulness is enclosed by the following borders. The upper border is at the third rib; the right border is at the right border of the sternum; the left border is in the fifth intercostal space, two centimetres, or three-quarters of an inch, to the left of the left nipple line, and at this left border the apex-beat is seen and felt. You observe that the apex-beat is somewhat diffused, and, instead of being thrust out with each pulsation, it is drawn in. There is systolic retraction at the apex. You see that the nipple is drawn in with each pulsation. Percussion then shows an increase in the area of cardiac dulness in both diameters, but mainly in the horizontal diameter. The tones at the aorta and at the apex are feeble but clear, and the second tone at the pulmonary is accentuated. We feel that the radial artery is small, that the pulse-wave is likewise small, and if you compress the vessel you will observe that it takes very little power to suppress the pulse. We have then a feeble pulse of low pressure, and if you will examine carefully you will observe an irregularity in the form of the pulse-waves, in the strength of the individual pulse, and this irregularity in the form of the pulse is confirmed by the sphygmographic tracing. (Fig. 2.) The

liver dulness extends from the fifth rib a distance of fourteen centimetres, or five and one-half inches. You feel that the surface of the liver is smooth; that the consistency of the liver is increased; the liver is enlarged; is hard, but is smooth. You feel no nodules at

FIG. 2.



A. DESAGE, G. 18, 22. VL. 83

Sphygmogram of the radial pulse in a case of leukemia.

any point upon the surface of the liver. When he breathes you feel this smooth, hard liver pressing against the hand. The spleen, as you see, is somewhat enlarged, and extends a little beyond the anterior axillary line. The sputum is muco-purulent in character, and, as you observe, is somewhat tinged with blood and the blood-tinge is partly fresh and partly old.

The urine that our patient passes, as you see, is dark, containing a small quantity of albumen. If we make a *résumé* of the evidence collected in this case, it is, we find, a slight dulness of the right apex, with bronchial inspiration and expiration, and secretion of a yellowish, muco-purulent sputum, an increase in the area of cardiac dulness, in the horizontal diameter especially, with an accentuation of the second pulmonary tone, the other tones of the heart being clear, the apex-beat being retracted instead of elevated. Furthermore, an enlargement of the liver, with an increase in consistency, and the secretion of a small quantity of high-colored urine containing a small quantity of albumen, dyspnoea, and a feeble, irregular pulse of low tension.

What must be the condition of the lung in our patient? There must be an infiltration of the right apex. The infiltrations of the apices are nearly always tubercular. We have here, in all probability, a tubercular infiltration of the right apex. Now, this increase in volume of the heart or the increase in the area of cardiac dulness must be due to hypertrophy of the right ventricle because the area of cardiac dulness is increased to the right. That indicates an increase in volume upon the right side of the heart. And this increase in volume must be due either to hypertrophy or dilatation. The reason for thinking that it is due to hypertrophy in this case is the accentuation of the second pulmonary tone, which is very marked. The causes which may lead to hypertrophy of the right ventricle are mitral stenosis, mitral regurgitation, aortic regurgitation at times, and any obstruction to the circu-

lation of the blood in the pulmonary system. You may have a mitral regurgitation without a murmur at the apex, and you must not be deceived by the absence of that murmur. You are to judge of the lesions of the heart as much by the effects upon the circulation as by the murmurs. The lesions in the lung sufficient to produce obstruction to the onward flow of the blood are not adequate to explain this hypertrophy of the right ventricle. The hypertrophy of the right ventricle is very much greater than would be explained by this slight interference with the circulation through the lung, for only a very small portion of the tissue of the lung is involved in this tubercular process. So, then, we must find some other reason, and the only reason that is probable in this case is some obstruction at the mitral orifice. Now, whether that obstruction is due to the stenosis or is due to an insufficiency it is very difficult to say, inasmuch as we have no murmurs. But that there must be some obstruction at the mitral valve is very probable. As to this peculiar apex-beat, the retraction that we observed instead of elevation. During systole there is contraction of the left ventricle. At the same time the heart moves downward and presses against the chest wall, and this downward movement of the heart is due in part to the elongation of the arch of the aorta. You know that when blood is forced into the aorta in consequence an elongation occurs. Secondly, in consequence of the back action that occurs when the blood is forced out of the heart, a similar outward movement occurs. Just the same as when a gun is discharged there is a backward movement of the gun,—a kick, as it is called,—so there is a back action of the heart in the same manner. Then, on account of the peculiar spiral arrangement of the muscular fibres of the heart during systole, there is a similar forward movement of the apex. Now, when there is adhesion of the pericardium these movements of the heart are prevented, the heart is bound down to the pericardium and by it to the surrounding tissues, and, as a consequence, the heart cannot make this movement. The result is that when the heart is shortened, as it is by the contraction of the ventricle, and cannot move down, it is drawn away from the chest wall and the chest wall must follow or otherwise a vacuum would occur between the chest wall and the heart. Now, a similar condition can occur when this back action of the heart is lost, as, for example, where the arch has lost its elasticity and cannot be stretched when the blood is forced into it. In the next place, in stenosis at the aortic orifice, where the quantity of blood that can pass through the opening is very much diminished and the blood passes through but slowly, the back action is lost, and we must have a similar systolic depression

instead of an elevation. In our case here we have no signs of aortic stenosis. We have likewise no signs of very extensive atheroma, but our patient tells us that some years ago he had a severe attack of pain in the chest, which makes it probable that at that time he had a pericarditis, and that in consequence of the pericarditis there have occurred adhesions of the pericardium, and that these adhesions have produced the systolic depression or contraction that we observe. The enlargement of the liver can be explained by a venous stasis. The venous blood from the liver cannot pass out of the hepatic veins as readily as under normal circumstances, because the blood does not pass from the vena cava into the heart, as it normally does. There is a stasis of blood in the vena cava. This stasis of blood in the vena cava produces a stasis in the liver, and the result is a venous engorgement of that organ. Under such circumstances the condition that is termed the nutmeg liver is very liable to ensue. The nutmeg liver is a liver in which a fatty degeneration has occurred, and in which, furthermore, there is a venous stasis. The circulation of the blood through the liver, of course, is very much impeded under this condition of venous stasis, the nutrition of the liver cells naturally suffers very decidedly, and a fatty degeneration is very apt to occur. We find the liver under such circumstances larger than normal and somewhat harder. And, upon making a section, it looks yellow, with red, or, rather, with brownish-red dots, resembling in appearance a section of a nutmeg, from which resemblance the name nutmeg liver is derived. We have a similar condition of venous stasis in the kidneys, as is shown by the secretion of a small quantity of urine, dark in color, evidently a concentrated urine, containing a small quantity of albumen. The oedema present is due partly to the lessened secretion of urine and partly to the venous stasis.

The clearest indication for treatment here is the improvement of the condition of the heart as far as is possible. The heart is the organ which, through its failure to drive the blood on, in all probability produces all of these unpleasant symptoms that we observe. This fever which we have noted is probably caused by the tubercular infiltration. That we cannot reach, so that the only point of attack that we have is the condition of the heart. Now, our patient has been taking various heart tonics, but they have failed to relieve him. His condition is about the same as it has been for some time past, and I propose this morning to relieve the heart by a direct method,—namely, by the withdrawal of a certain quantity of blood. He has been taking strophanthin and caffeine and a variety of heart tonics without any

effect having been produced. Now, as I say, we propose to draw some of the blood and so relieve the work that the heart has to do. You will sometimes find that the venesection of six ounces of blood will produce very marked effects in relieving the heart of a great load that it cannot move on sufficiently well. In olden times bloodletting was a procedure that was almost universally resorted to. It mattered not what the disease was; it mattered hardly what the condition of the patient was: if he was sick he was bled. A revulsion of feeling then took place, and, instead of bleeding too much, venesection ceased entirely, and I think that the reaction went a little too far. I think that in some cases great benefit can be derived from bloodletting. In a case like the one before us everything about the body seems to call for bloodletting. It stands to reason that if the quantity of blood be diminished the work of the heart will be diminished likewise, and we have a right to expect that some improvement will occur. We have now drawn off three hundred cubic centimetres, or about ten ounces, of blood, and the patient evidently feels somewhat better. We will continue the heart tonics in this case. That which we have been using during the past week has been nitro-glycerin. We will expect a more decided effect from it after the withdrawal of the blood than we have had before. As I remarked before, the patient evidently feels a great deal better since this was done, and you see he breathes more quietly than before.

HEREDITY AS A PRIMARY FACTOR IN GRAVES'S DISEASE, WITH REMARKS ON OTHER ETIOLOGICAL INFLUENCES.¹

BY ROLAND G. CURTIN, A.M., M.D., PH.D.,

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IN a paper read before the American Climatological Association, in September, 1888, on "The Effect of Climate on Graves's Disease," I suggested that the disease was primarily hereditary, and that climate was often the secondary or exciting cause. In that paper forty cases were reported that had occurred in seventeen families, which seemingly proved that it was hereditary. I showed that environment seemed to have much to do with the development of exophthalmic goitre, and cases were cited of families who inherited the disease, in which one branch living on low land was free from the disease, while another branch having its habitat in an elevated region was markedly affected. I have continued my observations and will give you the result of my work, which will, I think, corroborate the truth of the assertion then made.

I will give you all the cases which seem to bear on this subject that I have up to this time gathered in my search, including those published in the paper before referred to, together with some other causes which seem to influence its development.

Dr. Frederick Clark, of Fairfield, Iowa, brought a case to me with the following history. After reading it, I asked him if there was any history of heredity in the case, and he informed me that he did not think that there was. He afterwards wrote me as follows: "For some reason they kept this family history from me."

¹ Read before the Second Pan-American Medical Congress, in the City of Mexico, November, 1896.

Personal History.—Age twenty-two; blonde; hair reddish; never been sick. During 1890 she took a two years' course in music in one year. Worked very hard. In November, 1890, noticed her eyes becoming prominent. Exophthalmos of both eyes developed, but the left was much more prominent than the right. Improved until the right eye became normal. In January, 1892, the pulse was found to be 102, varying from 96 to 120, and becoming more rapid on the slightest exertion. Slight enlargement of the right lobe of the thyroid. In February, 1892, a lamp exploded in her room and burned her clothing, causing intense fright. Following this all the symptoms were increased for a time. In March, 1892, there was marked enlargement of the right lobe of the thyroid.

Family History.—Paternal grandfather, at thirty-five years of age, was much frightened and overworked at a fire. This was followed by goitre of one side (not known which). Pulse rapid and intermittent. No ocular symptoms. Goitre improved and nearly disappeared, but the pulse always remained rapid and intermittent.

Father: slight enlargement of the right lobe of thyroid, which was first noticed in November, 1891. Heart normal. No eye symptoms.

Maternal aunt: at twenty-seven, overworked herself teaching. Exophthalmos of both eyes followed, accompanied by rapid pulse. Complete rest for one year made the eyes normal, but the pulse was always rapid until death. The exophthalmos in her case came on gradually.

You will observe that on the paternal side her father and grandfather, and on the maternal side an aunt were apparently affected with this disease, indicating that the patient had a double hereditary tendency thereto.

You will notice that the left eye was the one that was most affected, and in her father the left lobe of the thyroid gland was the seat of the enlargement. This would lead us to suspect that the left side of the nervous system in this family was more susceptible to the disease than the right, probably through heredity.

I cite this case to illustrate that in many instances much information can be elicited by pointed inquiry as to other cases in the family.

A physician was permanently invalided before the birth of his two girls, having contracted phthisis in the late rebellion. Both of these girls had Graves's disease, causing the death of one at the age of twenty, while the other was attacked at the age of thirteen, and has not yet recovered. The latter child was always very precocious, and morbidly excitable.

N. B., aged twenty-three, living at an elevation of nearly two thousand feet above the level of the sea, has well-marked symptoms of the disease now under consideration. She tells me that her mother and a brother, also residents in the same locality, have had similar symptoms, but none of her relatives living at a lower elevation have developed any symptoms of the disease. I have reported other families where a moderately high altitude has seemed to develop the malady in families having an inherited predisposition.

Dr. W. C. Bailey, of Albion, New York, in a very interesting report of a case of this affection, states that an elder sister had a bronchocele, which developed when she was fourteen years old, and which disappeared four years afterwards.

Dr. J. Levick, of Philadelphia, observed a mother and her son, a physician, both well-marked cases.

Dr. R. H. Hamill, of Philadelphia, reported to me that he had a family in which a mother and her daughter were markedly affected, and in another family he had observed two sisters and a grandmother in a similar condition.

Dr. Sansom, of London, informed me that he had observed two patients, sisters, with well-marked Graves's disease.

At different times I attended two girls, first cousins, who developed Graves's disease, one at the age of thirteen and the other at fifteen, and both of their mothers (sisters) had been similarly affected in early life.

Of two sisters, one had the disease at eighteen, while the other had an irritable heart for several years. The latter became pregnant at thirty. During gestation with her third child she developed exophthalmos and an enlarged thyroid gland. Their mother had an enlarged thyroid, which in early life developed suddenly with irritable heart. At the time of the examination the gland was greatly enlarged and quite hard.

Other examples of the heredity of this disease are seen in the case of Mrs. X., whose daughter was also effected; two sisters, one aged thirteen and the other fourteen; Mrs. J., aged fifty-four, and her son, aged seventeen; Mrs. D., aged thirty, and her daughter, aged fourteen; Miss H. H., aged twenty, also her aunt and grandmother, three in three generations; the Misses K., first cousins, whose parents were from Alsace, exhibited unmistakable evidence of the disease at the time of the establishment of their menses; two sisters, living in Allentown, Pennsylvania, were affected with this disease, one of whom was under my care in the Presbyterian Hospital, in Philadelphia; Mrs. T., at the

age of thirty-four, had symptoms of exophthalmic goitre and fifteen years previously had had similar symptoms; I also attended her first cousin, a girl of thirteen, for the same affection. A colored woman was admitted to the Philadelphia Hospital with a well-marked sub-acute attack of this malady, and informed me that her grandfather had died of the same disease after an illness of two years. Mrs. C. and one of her daughters were excellent examples of the chronic form. Mrs. A. gave the history of six female members of her family in four generations who had this disease; R. C., a female, who had never menstruated, was attacked at the age of sixteen, and her mother, a sister, and a maternal aunt had a history of exophthalmic goitre; a mother and one of her two daughters were similarly affected. In the S. family two sisters suffered with Graves's disease when arriving at puberty. Mrs. H. was attacked at thirty-seven years of age, and her niece at eleven, while her daughter developed symptoms of the disease at fourteen, and died six months later of organic heart-disease. In the B. family three sisters, the only children, had unmistakable symptoms of this disorder, one at six, another at ten, and a third at twelve years; their mother had palpitation and enlarged thyroid at eight years, and her sister the same symptoms at twenty-two years: making five cases in this family that were affected by the disease.

The history secured from the H. family in regard to their grandmother was that she had a large thyroid all her life. It was associated with palpitation and a wild expression of the eyes. The enlargement of the thyroid continued until her death, at which time it was noticed that it had suddenly almost entirely disappeared, probably from the withdrawal of the pressure in the blood-vessels. If this enlarged thyroid had been occasioned by cystic disease this sudden marked change certainly would not have taken place.

Mrs. K., aged twenty-five, after confinement, and her two nieces (sisters) about puberty, developed Graves's disease. The family was quite small, and lived in an elevated valley among the Alleghenies.

Mrs. H., her only daughter, a male first cousin and his daughter, a daughter of a female first cousin, another female first cousin's child, and a male first female cousin's child, all suffered from it.

You will observe that in this branch of the family there were actually seven cases in two generations,—namely, two in the first and five in the second. The father and mother of Mrs. B., and the parents of her first cousins, had taken up their residence among the mountains, after having arrived at maturity, where the children were born and raised. This family had quite a large connection, most of them living

near tide-water, not one of whom had any symptoms of exophthalmic goitre.

Dr. H. C. Wood, of Philadelphia, was called in consultation in the case of a child, six years old, with well-marked symptoms of acute Graves's disease. He lived six months after the first symptoms of ill health, dying of the disease. The child's father, a judge, and an observing one, informed Dr. Wood that another child had died at an early age with exactly the same symptoms.

Dr. Dellenbaugh, now of Cleveland, Ohio, while formerly practising in Philadelphia, had two patients, sisters, who had marked Graves's disease, which appeared about the first menstrual period.

Dr. G. W. Guthrie, of Wilkes-Barre, Pennsylvania, has two patients (a mother and daughter) afflicted with this disease. He states that he has treated a mother and her four daughters for exophthalmic goitre.

Dr. J. Madison Taylor, of Philadelphia, has reported two patients (sisters) with this affection.

Miss K. had marked symptoms at thirteen, and three years later I treated her first cousin, aged fifteen, for the same affection.

Since my first paper was written, I have found that two of my second cousins, who are also second cousins, had the disease at puberty. They live in the Allegheny Mountains, in a limestone region.

Summary of Cases.—We find ninety-seven cases of Graves's disease in thirty-five families. All of the diagnostic symptoms were not present in a few of these cases, but in every case some of the peculiar symptoms of Graves's disease were present in families that had the disease unmistakably.

Influence of Limestone Districts in Developing Graves's Disease.—I have always heard that residents of limestone districts were apt to be "goitrous," and it has been stated that drinking limestone water produces goitre. I have personally studied cases of bronchocele in two such localities in Pennsylvania, and have found among them latent cases of Graves's disease, some of which were well marked. A number showed their identity by the sudden onset, the rapid heart, the extreme nervous symptoms, and the varying in size, and the soft, doughy feeling of the thyroid gland. This was especially the case in the early stages of the disease. In some instances these symptoms appeared suddenly, when the patient was under the influence of fright, emotion, or some slight ailment, such as indigestion, dysmenorrhœa, or anything that caused nervousness, anæmia, or a febrile condition. In the great majority of these cases the condition of the thyroid seemed to be

simple bronchocele, while others in the same neighborhood, or even in the same family, had Graves's disease. I am of the opinion that some if not all of these cases are peculiarly developed Graves's disease, modified by water, climate, soil, some unknown local influence, or any combination of these influences. In two cases I found a cystic condition in some parts of the thyroid gland similar to that which is occasionally found in the glands in certain chronic cases of Graves's disease. The highest limestone locality that I examined was not over seven hundred feet in elevation. Perhaps the same people, had they lived at an elevation of three or four thousand feet, might have been found to be characteristic cases. Two physicians from the interior of New York State informed me that in their neighborhoods, both limestone districts, bronchocele and Graves's disease are becoming quite frequent.

The study of the nationality of my patients and their ancestors is both interesting and instructive. The localities showing the greatest number of cases of Graves's disease and its hereditary tendency are, first, Alsace, in Germany, second, Switzerland, and, third, the western coast of Ireland. The ancestors of those of my patients who had positive evidence of exophthalmic goitre were generally affected with simple goitre, or bronchocele, but occasionally the symptomatology proved that they had the disease now under consideration. I am convinced, after a study of many such cases, that the "goitre districts" of Germany, France, and Switzerland are districts in which hereditary Graves's disease is the prominent factor, the modifying influences of environment changing its character. After studying this disease and its relation to locality, I am of the opinion that in the future we will have "goitre districts" in the United States, the same as exist in Europe; for I am convinced that heredity, altitude, and perhaps other as yet ill-defined factors are at work in certain localities, and all that is now required to make a "goitre district" is for the people in those neighborhoods to remain at home and "breed in and in" for a few generations. In the case of children of foreigners whose parents had a history of bronchocele, or doubtful Graves's disease, had their ancestors lived at the same elevation or locality, or as luxuriously, and been under the same nervous strain and excitement, they too might have had the well-marked form of Graves's disease. Their parents at home were peasants, leading quiet, peaceful lives, and some of them were domiciled but a few feet above the level of the ocean. Another exciting cause is *excessive study*. I have noticed that in sixteen instances girls about the age of puberty developed the disease while under great mental strain from excessive study or immediately thereafter. You will notice, in

the history of Dr. Clark's patient, that she took a two years' course of music in one year, and her maternal aunt developed the disease at the age of twenty-seven while overworking herself at teaching. Some of the patients with an inherited tendency to this disease showed great precocity from the excitable condition of their nervous system. This sometimes occurs before the disease develops, and the proud parents or thoughtless teachers encourage them to work until they are overwrought, nervous, and anæmic, and then a slight illness or fright develops the disease, and the latter is given as the original cause. I am well satisfied that those who have a strong inherited predisposition are less amenable to treatment, and are more apt to relapse or to assume the chronic form. The prognosis in these cases is serious, as death sometimes occurs, and is more apt to do so in the young. In fatal cases death rarely takes place within a year. The reason that this disease is, comparatively speaking, rare is that persons may have a strong tendency hereditarily, and yet escape, owing to the fact that the requisite surroundings are not present at the age when the person is most susceptible, which in the female is about puberty.

Conclusions.—1. Graves's disease is hereditary.

2. The marriage of those having such an inheritance should be discouraged.

3. A person who is known to have the inheritance should reside at an elevation of more than five hundred feet.

4. They should avoid great excitement or any highly exciting occupation.

5. They should not reside in a limestone region.

6. They should not reside in a malarial district.

7. It would be wiser not to select a home in a locality where the disease is common, no matter where the locality may be.

8. They should be careful to avoid all those things that are likely to produce anæmia.

9. They should avoid excessive study, any prolonged mental or sexual strain, or anything which can bring on a neurasthenic condition.

CARCINOMA OF THE PANCREAS.

CLINICAL LECTURE DELIVERED AT GUY'S HOSPITAL.

BY W. HALE WHITE, M.D.,

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GENTLEMEN,—We have recently had in Stephen Ward two patients who have died of carcinoma of the pancreas, and as that is not a common malady it seemed to me that we might well consider it to-day. The histories of the cases are briefly as follows :

CASE I.—A man, aged forty-three, was admitted, on June 1, for great pain in the upper part of the abdomen and wasting. He has had syphilis. Otherwise his previous history is unimportant. The present illness began three months ago with loss of flesh and pain in the abdomen.

On admission, the patient appeared wasted and looked distressed and ill. There was much tenderness on deep pressure on the upper part of the abdomen, but the recti were so rigid that no satisfactory examination could be made. The whole body was most carefully examined, but nothing further abnormal could be detected. The diagnosis of malignant disease of the pancreas was suggested. After he had been in a couple of days, an anæsthetic was given to facilitate an examination of the abdomen, but nothing abnormal could be felt. During the first fortnight he gained seven pounds in weight. On July 3 a hard lump could be felt in the abdominal wall, on the right side, at about the level of the umbilicus. It was clearly in the wall and felt as though a florin were let into the wall underneath the muscles. There was little doubt but that this was a carcinomatous nodule, and the inference drawn at the time was that this was a secondary deposit in the peritoneum. During the ensuing week other lumps were felt in various parts of the abdominal wall, and about this time the patient began to lose flesh rapidly, and he died exhausted on July 15. During the whole of his illness he was much troubled by constipation. The

only treatment adopted was that morphine was given to relieve pain, and every attempt was made to get the patient to take food.

Autopsy.—There was a large, hard mass of primary schirrus of the pancreas occupying the whole of the tail of the organ. The pancreatic duct was neither pressed upon nor dilated. There were many secondary growths in the liver, some of them as large as walnuts, and there were many nodules on the parietal peritoneum, so that the abdominal wall had by means of growths become quite adherent to the liver over it. The peritoneal cavity contained one hundred and twenty-two ounces of blood-stained fluid. The head of the pancreas and the glands in the portal fissure were unaffected and the gall-bladder was not dilated.

CASE II.—A man, aged fifty-four, was admitted into Stephen Ward on July 10, 1896. His previous history is unimportant. The present illness began with diarrhœa at the end of June, after this had continued a few days he began to complain of pain in the upper part of the abdomen. A doctor gave him some medicine which stopped the diarrhœa. On July 10 he felt very faint and soon after vomited, bringing up, it was said, half a pint of blood. He was at once brought to the hospital.

On admission, he was very much collapsed and blanched. He was too ill to examine in great detail, but as far as could be made out there was an increased sense of resistance just above the umbilicus. He was not wasted, and the heart, lungs, and urine were all healthy. Four days later he again vomited a large amount of bright-red blood, and during the next four days he remained very weak. On July 18, he had a very severe attack of hæmatemesis and passed blood per rectum. About twenty-four hours after this he sank and died. The diagnosis was thought to lie between cirrhosis and carcinoma of the stomach.

Autopsy.—The stomach and intestines were full of blood. The head and tail of the pancreas were quite healthy, but the centre was occupied by a large hard solid mass of carcinomatous growth, which was adherent to the stomach and had ulcerated through it at a spot on the lesser curvature two and a half inches from the pylorus, and it appeared certain that the blood had come from this ulcerating mass of growth. There were one or two secondary nodules in the stomach close to the primary growth and also one or two in the kidneys. The portal fissure was free. The gall-bladder was not dilated.

The second case is altogether so rare that I think we shall learn most if we begin by studying the first case. The problem we had to solve was, What could be the matter with a middle-aged man who was

wasting, and had great pain in the upper part of his abdomen? So few were his symptoms that it was suggested that he was suffering from that disease called *anorexia nervosa*, in which patients who have no organic disease take very little food and waste very much. They are to be cured by rest, isolation, massage, and overfeeding. But not only was the great local pain and tenderness strongly against such a view, but you must please always remember that rigidity of the abdominal muscles means organic disease underneath them. This is a most important sign. Only this week we examined a patient in Mary Ward whose abdominal wall was so rigid that we could learn nothing as to the condition of the structures underneath it. We gave an anæsthetic and then felt a large malignant mass growing up from the pelvis.

Having decided that our patient had some organic disease in his abdomen, we next tried to find what would cause his symptoms. Intestinal tuberculosis would have given rise to diarrhoea. Renal tuberculosis shows itself in the urine. Neither tuberculosis of the intra-abdominal lymph-glands nor peritoneal tuberculosis cause intense pain, and the latter gives rise to peritonitis, of which the patient showed no signs on admission.

Some of you suggested aneurism, and a very good suggestion too, especially as the patient has had syphilis. You will remember a man in Stephen Ward last spring who was, on account of pain in the renal region, thought to have either renal calculus or a renal growth, but he turned out to have an aneurism of his renal artery. However, the most careful examination, even under an anæsthetic, failed to discover any aneurism, so we were driven to the belief that there must be an intra-abdominal malignant growth. The next thing to decide was the organ in which it was situated. There was, when the man came in, no evidence that it was in the stomach, intestines, liver, suprarenal capsules, or spine, for we examined him for symptoms of malignant disease of each of these, and the rigidity above the umbilicus showed it was high up in the abdomen. Therefore all that was left to us was the pancreas, and I particularly want you to remember that in its early stages at any rate, and sometimes during the whole of the patient's life, the only signs of malignant disease of the pancreas may be wasting, rigidity of the abdominal muscles, severe deep-seated pain, tenderness, and vomiting, and even this, as in the case before us, may be absent. So true is this statement that in spite of the fact that after an anæsthetic no tumor of the pancreas could be felt, although in this patient the abdominal walls relaxed so completely that the abdomen became

very easy to examine thoroughly, yet we all held to the original suggestion of malignant disease of the pancreas. Some, if I remember right, thought it was against the diagnosis that the patient gained a few pounds in weight. If the evidence of malignant disease is strong, do not let a slight improvement make you change your opinion, for rest in bed and good food will often lead to a gain in weight which, as our case showed, is only temporary. The development of peritoneal malignant nodules went a long way to confirming the diagnosis, for malignant disease of the peritoneum is almost invariably secondary.

It must appeal to you as a striking fact that with so few symptoms the diagnosis of malignant disease of the pancreas can be made successfully, for it is not common. It is the cause of death in about one in every three hundred patients examined in the post-mortem room of this hospital, and in the majority of cases physical signs that our patients did not show are present.

I have looked through the hospital records for the twelve years, 1883 to 1894 inclusive, and during that time nearly six thousand post-mortem examinations have been made. On ninety-nine occasions the pancreas has appeared to the demonstrator of morbid anatomy to be diseased, and the following list gives the frequency with which the various morbid conditions have been found :

Cirrhotic, congested, or hard pancreas	20
Primary malignant disease	19
Small or atrophied pancreas	16
Secondary deposits of growth in pancreas	11
Fatty pancreas	8
Malignant growth of other organs adherent to the pancreas	7
Cysts of the pancreas (including one case of hydatid)	4
Pancreatic calculi	3
Floor of ulcer of stomach adherent to pancreas	3
Tubercle of pancreas	2
Dilatation of ducts not due to growth	2
Floor of duodenal ulcer formed by pancreas	1
Abscess of pancreas	1
Edema of pancreas	1
Ruptured pancreas	1

We have had one case of hemorrhagic pancreatitis since this list was drawn up.

The cirrhotic, congested, or hard pancreas was nearly always associated with increased venous pressure due to cardiac, pulmonary, or hepatic disease, and is as far as is known of no clinical interest.

In thirteen out of the sixteen cases in which the pancreas was

small diabetes was present, and beyond the symptoms of this disease there was during life no evidence that the pancreas was diseased. When this organ was the seat of secondary deposits or hard growths of other organs adherent to it, the symptoms of the primary disease quite overshadowed those due to the affection of the pancreas.

The fatty pancreas was generally associated with old age, and although pancreatic calculi, pancreatic cysts, and hemorrhagic pancreatitis are extremely interesting, yet we cannot stop to consider them to-day, and the above list shows that they are so rare in comparison with primary malignant disease that that is the disease of the pancreas most interesting from a clinical point of view.

The growth is almost always scirrhus carcinoma. The medullary variety is rare, and sarcoma is excessively rare. The proportion of males to females is two to one, and most patients are somewhere between forty and sixty years old. You will notice our two patients illustrate all these points.

It is extremely important for you to bear in mind that the growth is nearly always in the head of the gland, and as a result of this the common bile-duct is pressed upon, the bile-ducts dilate, the liver becomes enlarged, the gall-bladder is in at least a third of the cases distended, and may be felt as a tumor projecting from underneath the liver, the patient may be jaundiced, his stools clay colored, and he may show signs of cholæmia. Sometimes when the original growth itself fails to produce these symptoms they are present, and owe their origin to enlargement of the portal glands from secondary deposits. Another but less frequent mechanical effect of the presence of the growth in the head of the gland is that the pancreatic duct is pressed upon, and that part of it which is behind the point of pressure dilates. Bright (*Medical Transactions*, vol. xiii., 1883) more than sixty years ago pointed out that the fæcal movements may in carcinoma of the pancreas contain large quantities of fat, which may be so much that it forms a thick scum, particularly about the edges of the vessel containing the fæces. As blocking of the common bile-duct is very common, and this symptom is so rare, it is probable, as I believe Professor Gairdner teaches, that it is most likely due to the fact that the pancreatic secretion is prevented from reaching the duodenum, and failure to digest fat may perhaps explain what I think I have noticed,—namely, that patients suffering from malignant disease of the pancreas may waste extremely rapidly.

To return to our two cases. Please remember that they were quite exceptional in the position of the growth in the pancreas, and in the

absence of secondary infiltration of the portal glands, and that these anatomical peculiarities will explain the absence of the symptoms we have been discussing.

Less important symptoms of carcinoma of the pancreas are that the patient usually suffers from constipation due no doubt in many cases to the absence of bile in the intestine. His feet may swell either from pressure of the growth on the vena cava, or because he is like other sufferers from carcinoma, very anæmic. Sometimes it is possible to feel the growth as a hard tender mass with a transmitted pulsation from the aorta, and stomach resonance in front of it, but you should remember that in thin subjects it is occasionally possible to feel the pancreas even when it is not the seat of growth. I have felt it as a hard mass when it has been cirrhotic from backward pressure due to bronchitis. In very rare instances a carcinoma of the pancreas forms a tumor large enough to be seen. The patients do not usually live sufficiently long for the growths secondary to that in the pancreas to produce marked symptoms unless they are in the portal glands. They may occur in any organ, but the usual site is the liver.

Our second case is very uncommon, because it is rare for the pancreatic growth not to be in the head of the organ, and still more unusual for it to ulcerate into the stomach and kill by hæmatemesis, but we have had other cases at Guy's in which it has attached itself to neighboring organs, for instance, it has adhered to the stomach, and in one under my own care it implicated the second part of the duodenum, obstructing it and perhaps helping to explain the very severe vomiting and constipation from which the patient suffered, and you will find that Bright described a case in which a pancreatic growth ulcerated into the duodenum. Not long ago a patient was admitted for intestinal obstruction due to the adhesion of a pancreatic growth to the colon, and I have specimens showing how it may involve the semilunar ganglia, but I do not know that this causes any symptoms.

Neither of our two cases showed any fat necrosis, but you should always look out for it in any form of disease of the pancreas, and we have had an instance at Guy's of its occurrence in association with pancreatic carcinoma.

The only treatment possible is palliative. Morphine is usually required for the pain. Vomiting is often especially difficult to deal with, as you must give the patient all the food he can take.

**GASTRIC CARCINOMA, AFFECTING THE CARDIA,
LESSER CURVATURE, AND ANTERIOR WALL;
A CASE OF MOVABLE KIDNEY, MANIFESTING
DIETL'S CRISES, WITH SPONTANEOUS CURE; A
CASE OF TYPHOID FEVER WITH RARE COURSE
AND COMPLICATIONS.**

CLINICAL LECTURE DELIVERED AT THE MEDICO-CHIRURGICAL COLLEGE.¹

BY J. M. ANDERS, M.D., Ph.D., LL.D.,

Professor of Medicine and Clinical Medicine in the Medico-Chirurgical College,
Philadelphia.

GENTLEMEN,—The diagnosis in the first case that I shall show you to-day has not been established with absolute certainty. The patient, a male, aged fifty-four years, a merchant by occupation, was admitted into the male medical wards of the Medico-Chirurgical Hospital, October 12, 1896. Both pulmonary troubles (including phthisis) and rheumatism existed in several of his ancestors. The patient has had typhoid fever and rheumatism long since, and repeated attacks of influenza more recently. The present complaint began in June, 1896. The primary symptoms were great distress after meals and acid eructations. After a short time he could not belch except by putting his fingers into his mouth,—a procedure that often caused vomiting. The local features continued without appreciable change for two months, and then nausea, coming on after meals, was added, and soon led to vomiting. The latter symptom gradually became quite frequent, even at times occurring before the meal was ended. The vomitus consisted of a sour-smelling liquid, containing mucus and undigested food. Sometimes he would vomit food in an undigested or partly-converted state, which food he had taken twenty-four hours previously. After the illness had lasted about one month the patient complained of a

¹ Reported by Mr. Morgan.

slight pain, dull and aching in character, in the epigastric region. Pain, similar in nature and almost constant, has been also experienced opposite to the eighth dorsal vertebra, on the left side, at the back. On the symptoms that I have briefly narrated,—particularly on the age of the patient, the rather abrupt onset, the early, strong, and persistent cachexial tendency, and the nausea and frequent emesis, the vomitus consisting largely of undigested food as long as twenty-four hours after it had been swallowed,—the diagnosis of gastric carcinoma was ventured. The reasons for arriving at this diagnosis will be rendered obvious by a consideration of these leading points somewhat more in detail.

The age often aids the clinical recognition of gastric cancer, most cases occurring between the fortieth and seventieth years. This patient was just in the middle of that range,—fifty-four years of age. The very frequent seat of this affection in the stomach is to be remembered at the outset. In some few instances the previous history furnishes the necessary data on which the diagnosis of antecedent chronic gastric catarrh or gastric ulcer may be based, but in this case it is entirely negative. In the majority of cases the onset is not so gradual as stated by most writers and teachers. *It is comparatively sudden.* This has been true in nearly all cases that have been admitted into the Medico-Chirurgical Hospital during the last decade,—two dozen or more. The man, even now, complains of hunger, though he suffers from nausea. His keen appetite is explained by the constant occurrence of vomiting, which has led rapidly to extreme starvation. In the larger number of instances, however, there is anorexia, often complete. Nausea is a prominent symptom, as a rule, and often leads to vomiting. When the latter symptom exists, as in this case, it points to an involvement of the orifices of the stomach. Note the time of occurrence and the character of the vomiting in this instance. It has been coming on immediately after meals, less frequently during meals. This points strongly to the fact that the cardiac end of the stomach is implicated. When the disease is situated at the pyloric orifice—its most frequent location—the vomiting usually occurs an hour or two after meal-time. There may be an involvement of the walls of the stomach, with little or no vomiting. Excessive emesis is in this case the most prominent as well as the most distressing symptom.

The pain has been fully described. It is uninfluenced by change of the patient's posture. The man's stomach was washed out yesterday, and then a rigid Boas test-meal was given, but after the lapse of two or three minutes the patient vomited. No free hydrochloric acid

was found in the filtered vomitus, for the reason, most probably, that the test-meal had not remained long enough in the stomach to excite the secretory function of the organ. Usually there is continued absence of free hydrochloric acid, but, as the same result is met with in other gastric affections (atrophy, etc.), it has little positive diagnostic value. If there be constantly present in the given case free hydrochloric acid, it indicates with great probability the absence of gastric carcinoma, unless the latter has followed gastric ulcer, in which case it may be present. The constant presence of lactic acid (in the absence of free hydrochloric acid) is indicative (almost to a certainty) of gastric carcinoma.

The objective symptoms have in this instance considerable diagnostic value, though they be few. I learn nothing on inspection. The palpating fingers readily appreciate the pyloric end of the stomach, but no tumor can be felt there. In the upper portion of the epigastric region, however, I feel an induration, which occupies a part of the small curvature shading off into the anterior wall of the stomach. Inspection of the navel shows it to be free from nodules, and the same is true of the inguinal lymphatics on the left side. On the right side, one of the inguinal glands is very slightly enlarged. The supraclavicular lymphatics are not involved. The patient's skin and mucous membranes are pale and somewhat sallow, he is much emaciated, and his face is strikingly cachectic looking.

I will not engage in a discussion of the differential diagnosis of gastric cancer this morning, preferring to allow the clinical picture of this interesting case to remain clean-cut and not bedimmed by contrasting the leading features with those of other affections which simulate carcinoma of the stomach more or less closely. And whilst we cannot establish the diagnosis of gastric cancer affecting the cardiac end of the stomach, the lesser curvature, and the anterior wall with absolute certainty, yet all features, properly interpreted, combine to favor this view. Gentlemen, this patient will be operated upon by Professor Laplace, who purposes to perform gastrostomy in order that more nourishment may be introduced into the system. Laparotomy will clear the diagnosis, and I promise to let you know whether or not our premises have been correctly taken on this occasion.

[Ten days later an operation was undertaken, and revealed extensive carcinoma at the cardiac orifice (producing a moderate degree of stenosis), along the lesser curvature, and a small part of the anterior wall of the organ, with secondary nodules in the posterior and under portion of the right lobe of the liver.]

A CASE OF MOVABLE KIDNEY.

The second patient is M. C., a female, aged twenty-six, married, occupation house-work, and of Irish nativity.

The family history furnishes no information of any clinical importance. So far as can be ascertained, the patient had never been sick prior to the onset of the present attack, which began five years ago. The initial symptoms were headache, severe epigastric pains, and vomiting. These lasted from one to several days, and recurred every few weeks. After she had been ill for one year, the vomiting, pain, and other symptoms became slowly and gradually intensified. More recently these attacks had been manifesting themselves at intervals of one week on the average, and had incapacitated her for manual labor. Besides the history given by herself, certain facts, which are strongly suggestive of movable kidney, have been elicited as the result of close questioning. On being asked whether the urine has not been very scanty during the gastric crises and quite free after their termination, she admits that this has been invariably the case. The patient has not, however, observed the urine to present a bloody appearance following the attacks. Upon inquiry, I have also learned that the abdomen is greatly swollen during the seizures before described. In view of the fact that the symptoms contributed by the history—sudden, great abdominal pain, vomiting, distention of the belly, tenderness, and signs of collapse—were strongly suggestive of Dietl's crises, I at once made an effort to find the movable kidney. Palpating the abdomen, I discovered a movable kidney-shaped body, which was smooth and firm and could be readily conveyed into the normal site of the right kidney.

I will now palpate the abdomen in your presence, placing the patient on her back, near to the edge of the bed. This is the posture best adapted for many cases. The patient is requested to draw up the knees and relax the abdominal walls. Now, if, as is the case in about eighty-five per cent. of the instances, the right kidney be dislocated, press the tips of the fingers of the left hand against the back over the upper part of the lumbar region, while with the tips of the fingers of the right hand you make counter-pressure in front, as I am now doing. The tips of the palpating fingers in front readily detect the movable organ as pressure is made behind. I will now ask the patient to take a deep inspiration, with the view to forcing the kidney downward through the influence of the diaphragm, whereupon I easily appreciate the presence of the movable organ in an abnormal position.

Whenever the movable kidney cannot be palpated while the patient

is in the recumbent posture, he should turn on the side (usually the left) opposite to that on which the kidney is dislocated, when the organ is apt to wander farther from its usual site in consequence of gravitation, and may become of easy detection. In this instance not the slightest difficulty is encountered in palpating the movable organ while the patient occupies the lateral decubitus. Should this, however, have failed, the patient would have been placed in the knee-elbow or in Edebohl's posture, which would have caused the organ to occupy a position immediately above the inner surface of the anterior abdominal wall, a position determined by gravitation. I am able to carry the kidney across the abdomen to the median vertical line as well as downward to the transverse umbilical line, but no farther in either of these directions; hence the term "movable kidney" is applicable here. When the organ passes beyond the mid-vertical line or below the level of the umbilicus into the right lower quadrant of the abdomen, it is appropriately termed a "floating kidney," and this whether the organ is covered with meso-nephron or not.

The clinical recognition of movable kidney is sometimes beset with difficulties. There are a few conditions which may be mistaken for it, and I beg you to note the few differential points which render their discrimination a comparatively simple matter. Retained fæces may present a tumor-mass which is slightly movable, but a saline aperient, particularly if repeated, will cause its rapid disappearance. Cancer of the duodenum and of the pylorus give rise usually to the signs and symptoms of a movable, hard tumor. In this affection, however, the gastric symptoms are both more severe and more persistent, while the general features—progressive emaciation and debility—become early so well marked that there is no room left for a mistaken diagnosis. Not long since I saw a case of dropsy of the gall-bladder which had been misdiagnosed as a movable kidney. Whilst I found a rather hard, smooth, and somewhat movable tumor, it was quite superficially situated, and could not be carried into the normal site of either the right or the left kidney.

The *prognosis* is, on the whole, favorable, especially since the improved methods of dealing with the condition have been inaugurated. The fact should be emphasized that, on being put back into its normal position by mechanical means, it may remain there permanently. In like manner, spontaneous cures occur, although rarely. After permanent replacement of the organ by either mechanical or surgical means, the symptoms from which the patient had been suffering usually disappear. Two cases, however, have fallen under my ob-

servation in which, after successful nephrectomy, the associated nervous phenomena, which were quite distressing, persisted. When the gastric crises are both frequent and severe, they sometimes prove to be a source of danger to life. Hydronephrosis and pyonephrosis may result from movable kidney. It more frequently proves fatal since its surgical treatment has come into vogue. On the other hand, surgical operations have served to cure many otherwise incurable conditions dependent upon a movable or floating kidney.

Gentlemen, on meeting with a floating or movable kidney, immediately or soon after the dislocation of the organ, fixation of the organ to its natural site should be attempted by forcing absolute rest and keeping the kidney in its natural position by mechanical means. A bandage made of silk-elastic and large enough to cover the whole abdomen is to be applied. To prevent its slipping upward, two straps (one on either side), made of soft rubber material, may be fastened at the back and at the front, passing between the legs. On the inner side of the bandage and directly over the normal site of the movable kidney a pocket of some soft material should be sewed, and into this a pad should be pushed from above and changed as occasion demands. Unfortunately, the circumstances, as in the case before you at present, are generally against the advisability of carrying out this plan. Neither can I recommend the continued use of medicinal measures for the relief of the reflex and other symptoms dependent upon the dislocated organ. In this case, which has already lasted more than five years, and in which the Dietl crises have rendered the patient physically unfit to follow her usual avocation, the best and only thing to do is to perform nephrectomy. This opinion is shared by Professor Laplace, who has confirmed the diagnosis by physical examination, and purposes to perform the above-mentioned operation at an early date.

[Two weeks later Dr. Anders reported the facts that since the organ had been pushed into its place, at the time when he discussed the subject of the treatment of the affection, it had not been recognizable in an abnormal position, and that an operation such as proposed on the occasion of the clinic was no longer indicated. The kidney, however, was still palpable in the normal position on asking the patient to take a deep inspiration. The tendency to spontaneous cure observed in this case tended to corroborate a statement made two weeks before in the presence of the medical classes.]

A CASE OF TYPHOID FEVER WITH RARE COURSE AND COMPLICATIONS.

The third patient is a female, married, aged thirty years. She was admitted into the female medical wards on August 12, 1896. She had been accustomed to the performance of rather heavy manual labor.

The family and previous personal history are valueless. The attack of illness from which she is still suffering began on August 11, quite suddenly, while at work in her yard. The day was one of the hottest experienced during the recent warm wave. A couple of hours after the commencement of the attack she was brought to the hospital through the accident service, and at first the diagnosis of sun-stroke was made. The temperature, however, was found to be only moderately high,—104° F. On the following morning a physical examination revealed consolidation of the lower lobe of the right lung. She was now transferred to the medical ward. The fever continued moderately high, the evening exacerbations touching 103° to 104° F. (rarely), the morning remissions touching 102°. The patient complained greatly of headache, was apathetic, and, later, mild nocturnal delirium set in. The spleen was found, on palpation, to be enlarged as early as the second day of her stay in the hospital. The swelling of the organ increased with the progress of the affection. The case was treated as one of lobar pneumonia of the typhoid type, though the somewhat insidious onset, the nervous symptoms present, and the splenic enlargement suggested typhoid fever. At the end of the first week no crisis took place, as is usual in cases of lobar pneumonia, but the symptoms of the typhoid state became more pronounced, while the physical signs of pneumonia became less obvious. The characteristic rose-spots of typhoid were looked for at each visit until August 30, or on the sixteenth day of the patient's stay in the hospital, when they put in an appearance and cleared up the diagnosis for us. The eruption usually comes out on or about the eighth day, and it is quite rare to find it delayed until the sixteenth. It was obvious that the case belonged to the special variety of typhoid fever known as pneumo-typhoid, since the invasion was sudden and characterized by the objective symptoms of pneumonia. This is a not uncommon mode of onset, particularly in certain epidemics. The pulmonary lesions are primary, and due to the localization of the typhoid poison in the lungs. After the appearance of the eruption, on the sixteenth day of the illness, the physical signs of consolidation at the base of the right lung gradually and at last wholly disappeared. Later, on September 8, a slight

hemorrhage of the bowels took place, attended with a deep remission of temperature. The amount of blood lost did not exceed three ounces. But though the quantity of blood lost was small, this was regarded as a serious symptom, owing to the strong tendency of this symptom to recur; but our fears were groundless, as no further bleedings occurred. Immediately after the hemorrhage, delirium and mental dulness vanished. This favorable effect I have repeatedly observed. On the other hand, the sad occurrence of a severe bleeding may follow a mild hemorrhage. The former are decidedly baneful in their effects. On September 10 the fever began to decline in the usual manner, by lysis. Three days later the temperature, however, shot up to 106° F., and during the next four days ranged from 103° (in the morning) to 104° or 105° (in the evening). On the fifth day a crisis occurred (preceded by hyperpyrexia, 106°), the temperature falling to 98° F. No symptoms of collapse, however, appeared at this time. During this period of high temperature consolidation of the middle and lower lobes of the right lung existed, as shown by the presence of typical physical signs. Pneumonia at the outset, and again as a late complication in the course of a single case of typhoid fever, must be rare indeed. I have never met with a similar instance. That there occurred two distinct attacks of lobar pneumonia in this case I feel confident, from the repeated personal examinations of the thorax and the fact that the high temperature coincided with the physical signs. This statement is also corroborated by the fact that the temperature had been declining for several days before the onset of the secondary lobar pneumonia. The last attack, it will be noticed, terminated by crisis,—a circumstance which favors the view that it was a true complication, due to secondary infection. The declining period of typhoid fever, be it remembered, is characterized by a gradual defervescence of the temperature. On the other hand, authors and teachers are in pretty general agreement that lobar pneumonia, either at the beginning or near to the close of typhoid, is a part of the typhoid process, and not due to secondary infection by the micrococcus lanceolatus. This fact granted, and it becomes clear that the attack of lobar pneumonia in this case is to be regarded as a relapse, in which characteristic lesions were situated in part, if not wholly, in the pulmonary area. It may be stated that intestinal symptoms during the second febrile period were entirely negative. The typhoid eruption appeared on the third day (as often occurs in genuine relapses), and consisted in a single crop of three typical spots. The latter were somewhat coarser than those of the primary attack. The same may be said of the eruption of true re-

lapses. A blood examination was made by Dr. Pfromm shortly after the occurrence of the intestinal hemorrhage, and at the time when the temperature was declining by lysis, with the following result: Red blood-corpuscles, 3,250,000 per cubic millimetre, hæmoglobin sixty per cent., and no leucocytosis. The diazo-reaction was present throughout the fastigium as well as the period of temporary decline. The latter symptom, however, is not characteristic of this disease, though usually present. In a case of acute pneumonic phthisis in the male medical wards the urine answers to the same test. There remains to be pointed out the occurrence of threatened collapse during the primary attack, during which the temperature dropped to a low point and the pulse became exceedingly frequent, thready, and distinctly irregular. Prompt stimulation by means of strychnine, administered hypodermically, doubtless saved the life of the patient at this truly critical moment.

The *prognosis* was regarded as being exceedingly grave at several periods during the course of the affection, on account of the unusual number of serious complications, but the patient has entered upon convalescence finally, and will probably reach recovery. There is nothing unusual in the treatment pursued in this instance. It should be stated, however, that the cold-bath treatment was not inaugurated at the start on account of the presence of lobar consolidation. Perhaps the most ardent advocates of this excellent mode of treating typhoid advise against its employment in lobar pneumonia, the disease from which this patient seemed to be suffering at the time of admission. Again, owing to the late appearance of the eruption (on the sixteenth day of the illness), which made the diagnosis of typhoid fever possible, the cold-bath treatment was not instituted after the true nature of the affection became apparent. It is considered unwise to begin the cold-bath treatment during the third week of typhoid. The temperature and nervous symptoms were combated by the free use of cold-spongings and the ice-cap.

CIRRHOSIS OF THE LIVER; GOITRE; TINEA CIRCINATA.

CLINICAL LECTURE DELIVERED AT THE HOSPITAL COLLEGE OF MEDICINE.

BY THOMAS HUNT STUCKY, M.D., Ph.D.,

Professor of the Theory and Practice of Medicine in the Hospital College of Medicine, etc., Louisville, Kentucky.

GENTLEMEN,—The patient before us, Mr. M., aged forty-nine years, has been under observation for quite a while. About a year ago he presented himself at this clinic suffering from evidences of hypertrophic cirrhosis of the liver, the first stage of the disease, which is the stage of enlargement or hypertrophy. He had evidences of the disease at that time in hepatic enlargement, the caput medusæ showing quite plainly; abdominal distention; swelling of the extremities; alternating diarrhoea and constipation; evidences of general malnutrition being manifest in the shape of intestinal derangement. Those of you who will observe him to-day will see that, compared with his condition the first of the session, the abdomen is very much diminished in size, the fluid in the abdominal cavity having disappeared, and the first question that naturally suggests itself to you is, How has this apparent improvement been induced? At first, you will remember, he was placed upon calomel in large doses, ten grains every other night, with instructions to drink large quantities of water, depending upon the water for diuresis. This seemed to do comparatively little or no good outside of giving temporary relief. He was then placed upon the alteratives, with apparent improvement, which also seemed to be only temporary. You will remember he was then placed upon the solution of bromide of gold and arsenic, and we hoped for a great deal of benefit, but owing to the cost of these agents the treatment was discontinued. Three or four weeks ago he was placed upon renol, and I am free to acknowledge that the improvement has been greater, and the reduction more marked, under this form of treatment than anything else he has had.

It is well to recognize the fact that in the cause of anasarca, dropsy,

or œdema there must necessarily be some interference with the return circulation. There is a great law or rule which is of inestimable value to the young physician to remember,—viz., the cause of anasarca is always an interference with, and not necessarily disease of, the function of one of three great organs of the body,—either the kidneys, the liver, or the heart. We may have œdema of the extremities to a marked degree without any disease of the heart, either from anæmia, loss of tone, loss of power, loss of propulsive force, resulting in a marked interference with the return circulation, due to the fact that the heart is unable to force the blood to make the circuit, and for that reason you frequently have œdema of the extremities without any discoverable heart lesion. Take any patient who has been confined to bed for weeks or months; allow him to sit up, and the first three, four, or six days you will find that he will complain of swelling of the feet. Take a broken limb, have it set, let it be put absolutely at rest for weeks; when the patient gets up the limb becomes swollen. Take a hand which has been encased or placed at perfect rest for a time; when removed from its encasement and put to work, you have œdema, simply because there has been a change of the use of that organ, an interference with the function of the part.

I see no reason why we should not continue the patient before us on renol, expecting to obtain still better results. Four weeks ago it appeared as if it would be necessary to aspirate the abdomen; I see no reason now for such a procedure. Upon a physical examination we find the abdomen soft, flabby, not especially tympanitic, and the patient seems to be doing very well. The liver is still more or less enlarged. The question that arises in my mind where we have substitution of this fibrous tissue for normal liver cells, while there is a deposition of this fibrous tissue crowding out the liver cells, producing a necrosis of the liver cells,—a substitution of fibrous tissue for the normal hepatic cells,—as I say the question comes up with me, Can we, by any means or medication at our command, check or arrest this encroachment of the newly formed fibrous tissue and thus prevent the destruction or shrinkage constantly going on? I am perfectly free to confess that as yet I know of nothing, nor do I believe the profession has discovered anything, that is positive in its action. The most rational medication that presents itself to me is to endeavor to raise the general condition of this patient, withdraw those agents which are productive of this condition, such as the alcohols, etc., and regulate his life and habits, and so improve or correct his general hygiene that there will be a stoppage of the destructive process. We should look upon this

case in the same light as we would a case of phthisis where there had been destruction of the lung,—improve the patient's hygienic surroundings, give an easily assimilable diet; he should have pure air, and then we may give the reconstructives. The same principle will hold here with this condition, the liver is crippled and requires stimulation to excite hepatic action of that part of the organ which is left, because without stimulation it becomes torpid and obstructed, and as a result you have a passive hyperæmia. As long as you prevent this hyperæmic condition you are lessening the interference with the respiration, and you are relieving the portal circulation and thus greatly adding to the general comfort of your patient.

CASE II.—Mrs. N., aged sixty-eight years, applies to us for treatment because of a swelling which she says appeared on the front part of her neck some time last summer. It has the appearance and feel of an enlargement of the left side of the thyroid gland, belonging to that condition known as goitre. We have in this case none of the marked manifestations of goitre that we so frequently see in younger subjects; there is no exophthalmos, no bulging of the eyes, and the probabilities are there will be none on account of her age. I will mention one important clinical point to bear in mind in connection with these cases. It has been my observation that if the thyroid enlargement does not take place until after the age of fifty years, as a rule we do not get the marked symptoms that seem to accompany the condition in earlier life,—viz., marked exophthalmos, bulging of the eyes, great dyspnoea, marked cardiac symptoms, and general discomfort. What the relationship is I do not know, nor will we pretend to discuss this morning the probable relationship of a condition of this kind to cretinism, but simply take it in its clinical aspect. The thyroid enlargement is a source of great annoyance; it appears usually in those who are markedly anæmic, as this patient shows, or in those who are very much run down in general health. It appears in those persons of marked neurotic temperament, and as to there being a complete cure for the condition in one of her age I question it very much. The methods of treatment are simply those well-known alterative measures, the use of potassium or manganese salts being probably the best. I tried in one case last year the hypodermic injection of gold. While the tumor under this plan of treatment was markedly reduced, the amount of pain produced by the injection was simply excruciating, and I was kept on the anxious-seat, constantly fearing the formation of an abscess, which would need to be opened to give exit to the pus; and, recognizing the thorough way in which this

gland is supplied with blood, the possibility of hemorrhage was so great that it rather precluded or excluded that line of treatment. The method of electrophoresis in the treatment of this condition has been very highly recommended by some authorities. The plan is to place iodine or iodide of potassium upon one electrode and a solution of starch on the other; placing the negative pole on the nape of the neck, or upon one side of the tumor, and the positive pole on the other, the current is started, the drug being thus transmitted through or deposited in the enlargement. The method has been used in a number of cases with excellent results. Several physicians in this city have reported wonderfully rapid improvement from this line of treatment. Of course, to prove that the iodine or iodide of potassium has actually been driven through the gland, it is only necessary to call attention to the discoloration of the starch placed upon the electrode. I believe I have obtained the best results in these cases from binoxide of manganese. I am rather wedded to it; whether I have fallen into a rut, or whether it is because my clinical experience has demonstrated the great utility of this drug, is a question. I am rather convinced, however, that the effect of manganese upon the assimilative processes has been sufficient to produce a marked impression. I would suggest further this line of treatment in the case before us, and believe that in the course of ten days or two weeks, when she returns to the clinic, there will be evidences of marked improvement.

Essence of pepsin, $\mathfrak{Z}i$;

Albuminate of iron, $\mathfrak{Z}iii$;

Elixir of calisaya, $\mathfrak{Z}iv$. M.

Sig.—A dessertspoonful immediately after each meal.

This will make thirty-two doses. I would also suggest giving before meals the following:

Binoxide of manganese, gr. $\frac{1}{10}$;

Arseniate of strychnine, gr. $\frac{1}{100}$.

To take a tablet of each and place in a capsule is a very good way to administer it. The arseniate of strychnine acts, as we know, as an excito-motor stimulant, and we also get the tonic effects of the other drugs. One point with which you will be struck is that every drug which enters into the combination of this preparation to be taken after meals is known for its hæmopoietic properties, not only as to quantity, but also as to quality. Every one of the agents may be called a hæmoglobin-maker. The essence of pepsin is to stimulate the digestive

function, which is naturally impaired, and by stimulating the gastric secretion we furnish a larger amount of hydrochloric acid, and in that way cause the other agents to be more rapidly absorbed; so you simply give one agent to obtain the proper action of the other. If we do not have the presence of hydrochloric acid in the stomach in sufficient quantities, the iron and manganese will pass on into the intestinal tract, and there will be no assimilation whatever. This is an important point to remember, and in many cases iron is given for a long time, and we are unable to get any appreciable effect from its use. It is simply due to the fact that the stomach is unable to handle it in the proper way. You must plough and sow at the same time, just as may be done with the latest improved machinery. The identical principle is brought to bear in the treatment of cases such as the one before you; you prepare your furrow, drop your seed, and cover it at the same time. We prepare the soil with pepsin, throw in the stimulant, and stimulate the gastric secretion by the bitter principle of calisaya. In prescribing calisaya in this combination you must be sure to specify detannated, otherwise you will get a combination of iron which will make ink,—a disagreeable, ugly mixture that patients will not take.

We will follow this line of treatment for two or three weeks, and, if it does not prove satisfactory, then we will try electrophoresis.

CASE III.—The next patient is Mr. L. H., aged forty-eight years, who gives us a typical history of syphilis. He comes to us for treatment because of an eruption upon the hands and forearms. He had the initial lesion of syphilis last September, which he says dried up or healed, and was followed by an eruption distributed pretty generally over the entire body. Now the question arises, Has the eruption from which he suffers to-day any connection with the former attack of syphilis? It has very much the appearance of *tinea circinata*, and in many respects is a very interesting case. The fact may be demonstrated that we have here a simple parasitic eruption and not an eruption due to syphilis. By an examination we find that he has typical mucous patches on his tongue. Have we here a simple *tinea circinata* upon a syphilitic base, or have we an eruption of specific origin? The differentiation between these two conditions constitutes a very pretty point. If we give local treatment entirely and control this eruption in so far as the parasite is concerned, would not the crippled base be a good nidus or soil for the development of a syphilitic eruption from the irritation? So you are going to be handicapped in your treatment of this case from the start. We recognize from the history, from the

mucous patches, etc., that he needs specific treatment; we recognize from the suspicious appearance of the eruption the necessity for local treatment. I am going to give him internally a combination that you will recognize as specific, and locally we will prescribe the following: chrysophanic acid (3ss), glycerite of amyl, or glycerite of starch (3i), locally night and morning. The compound tincture of iodine would be of service. A small cantharis plaster over the affected part is frequently of great service. Another thing that proves very serviceable in these cases, when they are persistent, is the application of equal parts of blue ointment and lanolin, say to the thickness of a quarter to half an inch, permitting it to remain on not simply a day, but four or five days. Frequently in specific ulceration, if the ulcer is deep and hollowed out, so to speak, pack it with blue ointment and lanolin and leave it for a week. You will be surprised at the marked improvement which has taken place, as a rule, in these cases. No doubt a great deal of the mercury is absorbed, and you get the local stimulative as well as the constitutional effect. With our knowledge of the treatment of this condition, we recognize that the green iodide or the protiodide is indicated. Other points to be borne in mind are the season of the year, the general condition of the patient, his occupation, mode of life, and whether we can give him this agent in combination with other agents which will fortify him against any destruction of tissue or retrograde metamorphosis that mercury may produce at this season? I believe this point is an important factor in the treatment of these conditions. I would suggest the following mixture, which will no doubt appeal to you as being a combination of practical therapy. If there were in this case any cough or shortness of breath or other pulmonary symptoms, instead of using iodide of potassium I would use iodide of ammonium. The only advantage iodide of potassium has over iodide of ammonium is the greater amount of iodine that the former will take up, not that there is any virtue in the potassium. Another point you must bear in mind is that iodide of ammonium has a certain amount of cholagogic properties, stimulating the hepatic secretions. It is not uncommon after this drug has been given for two or three days to have a diarrhoea set up. This is due to direct stimulation, not of any reflex or duodenal secretion, but of the hepatic cells themselves.

R Iodide of potassium, 3v;
 Compound tincture of cinchona, 3ii;
 Fluid extract of sarsaparilla, 3ii;
 Aromatic elixir of malt, q. s. ad 3viii. M.

Sig —A dessertspoonful after each meal, followed by a good draught of water.

By prescribing the iodide of mercury separately in addition to the above combination, you secure the alterative effect of the mercury, and by its stimulation of the secretions you enhance the absorption of iodine, placing the parts in a condition ready to take it up ; you have then its effect as an alterative, antispasmodic, cholagogic, and stimulant. In the tincture of cinchona compound you have certain bitter principles, thereby stimulating the gastric secretions, enhancing the absorption of the iodine, in addition to its being antipyretic and tonic. Fluid extract of sarsaparilla and elixir of malt are added to aid in the absorption of the other agents and prevent any interference with the digestive processes of the stomach.

ANEURISM OF THE DESCENDING PORTION OF THE THORACIC AORTA.

CLINICAL LECTURE DELIVERED AT THE PENNSYLVANIA HOSPITAL.

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GENTLEMEN,—In previous clinics we have had the opportunity of studying cases that illustrate the aphorism of Broadbent that the thoracic aneurism of physical signs springs from the ascending portion of the aorta; the aneurism of symptoms develops in the transverse arch.

The patient whom I bring before you to-day suffers from an aneurism of the descending portion of the thoracic aorta; a condition frequently giving rise to severe symptoms, sometimes to marked physical signs, and often latent throughout its whole course.

E. T., colored, female, sixty years of age, married, housekeeper, was admitted to the hospital on the 14th of September, 1895. She is an intelligent woman and comes to us from a small town in Virginia. There is nothing in the history to indicate that she has ever suffered from syphilis other than the fact that she has had two miscarriages, which, however, did not occur in early pregnancies, and four living children, of whom three died in infancy in spasms. One son survives. Her general health has been good, with the exception of occasional transient indispositions, which she describes as bilious attacks. There is no history of any severe strain or contusion of the chest. The patient has not been addicted to alcohol.

The present trouble dates back some seven or eight years, when she began to suffer from neuralgic pains, extending to the left shoulder and arm. These pains have been persistent, with frequent intense exacerbations. They have extended downward, and are now referred to the

left side of the chest, radiating from the dorsal region in a direction downward and forward. As they became more severe in this region their intensity gradually diminished in the arm and shoulder, which are now comparatively free from pain. The pain has been so great that for the last three years she has been wholly unable to attend to her usual occupations. About four months ago she first observed in her back a small tumor, between the angle of the scapula and the spine, which has gradually increased in size.

Before proceeding to an examination of this tumor I will call your attention to the following facts noted in the history of the case, many of which are, however, without direct bearing upon the aneurism.

The patient is moderately emaciated. She lies constantly upon the right side, inclining to the prone position, all other attitudes increasing the pain. Her appetite is moderately good; there is no dysphagia; bowels constipated, but readily relieved by laxatives or enemata. She does not suffer from indigestion. There is no cough, no expectoration, no fever. Phonation is unimpaired. The area of cardiac dullness is not increased. The impulse is felt in the normal position in the fifth intercostal space, slightly to the left of the parasternal line. There is a faint mitral systolic murmur. Percussion resonance over the right lung anteriorly and posteriorly is normal. On the left side anteriorly and laterally the percussion resonance is vesiculo-tympanic. Upon auscultation the vesicular murmur upon the right side is slightly intensified; upon the left side there is heard feeble broncho-vesicular respiration, the vesicular element predominating. The radial arteries are thickened, inelastic, and are not atheromatous. There is distinct pulsation over the abdominal aorta, not expansile in character. The pulsation in the femorals is faint. The area of liver dullness is increased, extending from the fourth rib downward three fingers' breadths below the arch of the ribs in the mammillary line. The area of splenic dullness is normal; there is no abdominal tumor.

The physical examination is not entirely satisfactory, owing to the fact that the patient's pains are greatly increased by any change from the posture which she habitually assumes.

The finger-tips are not clubbed nor the nails incurved. There is slight icterus, as shown by the conjunctivæ. The urine on repeated examinations has been found to be acid, of high specific gravity (1030 to 1033), does not contain albumen nor sugar, yields the reaction for bile pigment, and has occasionally shown small hyaline casts. The tumor, as you see, occupies a position between the lower half of the

left scapula and the spine. It is hemispherical in outline and the size of a very large orange. The edge of the scapula, obvious to inspection and palpation, overlies its upper and outer margin to a slight extent. The mesial border of the tumor reaches to the vertical column. At its distal border below the angle of the scapula can be felt the eroded ends of the seventh and eighth ribs. This tumor is the focus of the constant pain from which the patient suffers, and which radiates downward and forward in the direction of the ribs. There is tenderness upon pressure in the region of the tumor, at times so great that the weight of the bedclothes cannot be borne. The patient complains also of other sensations in the tumor, as a feeling of "filling out" and "bursting," and "something moving in it."

The tumor is the seat of a visible pulsation, which, upon palpation, is found to be forcibly expansile and to have the rhythm of the cardiac systole. There is distinct diastolic shock. The heart-sounds are audible over the tumor and there is a faint systolic bruit. Tracheal tugging is absent.

The patient has now been in the hospital for several weeks and is much more comfortable than at the time of admission. She is, nevertheless, obliged to maintain the position described and is losing flesh and strength.

It is of interest for us to discuss, first, the question of diagnosis, and, second, that of treatment.

The diagnosis of aneurism of the descending portion of the thoracic aorta is in a large majority of instances attended with difficulty. In this case, however, it is a simple matter. We are not only justified in making a diagnosis of aneurism, but also of the particular form and in general terms of its position. The diagnosis of aneurism rests upon the presence of the tumor, its position, the expansile pulsation, its shape and contour, the erosion of the ribs, and the diastolic shock.

There are but two conditions which even remotely simulate aneurism in this locality. The first is a solid tumor, occupying the same site, such as enchondroma or lipoma. The phenomena of such new growths in this position are so unlike those presented by the tumor under consideration that it would be a waste of your time to discuss them. The second is pulsating empyema. Hemispherical, circumscribed, pulsating tumors occur in a certain proportion of the cases of old pleural effusion. They are extremely rare. When present, in a majority of instances they occupy a position in the anterior wall of the chest, almost invariably upon the left side. Exceptionally the em-

pyema necessitatis develops posteriorly ; very rarely, however, in the position of this tumor, though I have seen a case in which the tumor presented a little lower down. The differential diagnosis in this case rests upon the facts that in empyema necessitatis, though pulsation is present, it is never heaving or expansile ; diastolic shock is absent ; the evidences of pleural effusion are present. Of fundamental importance is the fact that the empyema necessitatis results from necrotic destruction of an area of the costal pleura, and that the tumor arises from an accumulation of pus, which makes its way to the subcutaneous tissues through a narrow opening between the ribs. Therefore extensive erosion of the ribs, such as we observe in this case, does not occur.

Aneurisms of the descending aorta are dissecting, fusiform, and saccular. The diagnosis of a dissecting aneurism is in many instances practically impossible. That of fusiform aneurisms must largely rest upon pain as a symptom of pressure and erosion ; that of saccular aneurisms must remain obscure so long as the aneurismal tumor remains wholly intrathoracic. When, however, as in the case before us, it gives rise, first, to definitely localized neuralgic pains ; second, to erosion of the ribs ; and, third, to the development of a hemispherical tumor with expansile pulsation, the diagnosis becomes obvious.

It is scarcely necessary to remind you that dissecting aneurisms of the descending aorta usually occupy a considerable extent of the vascular tube, and so remarkable are the lesions that, in one instance at least, a specimen of dissecting aneurism of the descending aorta has been described as a double aorta. Fusiform aneurisms likewise occupy a considerable extent of the aorta and do not give rise to external tumors. The aneurism under consideration is unquestionably, from its physical characteristics as an external tumor and its having caused extensive erosion of at least two ribs, saccular.

We have thus determined the nature of the tumor ; the form of the aneurism. It remains for us to invoke the clinical data of the case to determine the position in the descending aorta from which this aneurismal tumor springs. This is indicated by the position of the external tumor, which lies vertically between the fourth and ninth ribs. It springs, therefore, from the descending thoracic aorta below the level of the arch. The ordinary pressure phenomena of aneurisms of the arch are, therefore, absent. Laryngeal paresis, pupillary phenomena, difficulty in deglutition, dyspnoea, and tracheal tugging are alike conspicuous by their absence. The one pressure symptom that has been prominent from the beginning, long before the appearance of the

Fig. 1.—Aneurism of the descending portion of the thoracic aorta with erosion of ribs.



tumor and up to the present time, is pain distributed along the course of the spinal nerves. This we must account for by pressure upon and erosion of the ribs, probably also of the vertebræ.

The treatment has consisted in the administration of ten grains of potassium iodide at intervals of three hours, five doses daily, together with one drop of a one-per-cent. alcoholic solution of nitro-glycerin three times a day. For the relief of pain it is frequently necessary to administer morphine hypodermically. Less severe pain is sometimes temporarily relieved by the application of turpentine stupes over the tumor and affected side. The diet has been moderately restricted and the ingestion of fluids has been limited. It has not been thought desirable to add to the sufferings of this patient by a rigid diet, such as that originally suggested by Tufnell. Rest in bed has been enforced by the increase of pain which attends even moderate movements. Under this management the patient's sufferings have been greatly mitigated and the tumor has not increased in size. No permanent change has been noted in the frequency of the pulse, which varies between sixty and eighty per minute.

The question of operative interference, electropuncture, or the introduction of a fine wire by the Loreta-Barwell method had been discussed but abandoned. Notwithstanding the expansile pulsation the tumor is in the greater part of its circumference of firm consistence, and doubtless contains a considerable amount of organized clot, but the age of the patient, the large size of the sac, which, as indicated by the condition of the left lung, evidently exerts pressure upon the larger bronchi, together with the impossibility of obtaining her consent to any such procedure, have led us to refrain from urging any operation.

[NOTE.—The patient left the hospital on the 18th of December, when she returned to her home. We learned by a note from her grandson that she died of exhaustion on the 14th of March, the tumor meanwhile having greatly increased in size. No post-mortem examination was made.]

Aneurisms of the descending portion of the thoracic aorta are in a large proportion of the cases latent throughout their whole course. Even those which after a time manifest themselves by distinct symptoms or physical signs are latent for a considerable time in their early course. Pain is usually the first, often the only symptom. Though constant it is liable to frequent exacerbations and radiates in the direction of the intercostal nerves. That this pain should often be regarded as an essential rather than a symptomatic intercostal neuralgia is not

surprising, since it is, in fact, the manifestation of a pressure neuritis, and presents tender points and the other phenomena of ordinary intercostal neuralgia, except that of distinct or prolonged intermittence. A sign of importance in connection with pain is dulness to the left of the spinal column, and when to this is added the occurrence of auscultatory phenomena, such as systolic murmur or diastolic shock, however faint, the diagnosis becomes almost certain. Retardation of the left radial pulse, an occasional sign of importance when the aneurism compromises the left side of the transverse aorta, is, of course, absent in this case, nor have we been able to make out that there is distinct delay of the femorals as compared with the radials.

Pressure upon the hemi-azygos or intercostal veins sometimes gives rise to a dilatation of the veins of the anterior and lateral wall of the chest. In this case no signs of such pressure are seen. Exquisite pain upon movement of the dorsal spine and upon pressure of the spinous processes indicates that erosion of the vertebræ is taking place. Erosion of the ribs is manifest and demonstrable. Curvature of the spine is not present, nor are there paraplegic symptoms. Aneurisms of the descending branch of the thoracic aorta may destroy life, as in this case, by prolonged pain and exhaustion, or by rupture into the left pleura or, rarely, the right pleura, the left bronchus, the substance of the left lung, the pericardium, the œsophagus, or the abdominal cavity.

My clinical assistant, Dr. Walter Roberts, has collected and tabulated from the recent literature of the subject seventy-five cases of aneurism of the descending thoracic aorta which terminated fatally and were examined post mortem. Of these, sixty-three were males, twelve females. The average age was forty-three years. The youngest case was that of a boy aged four; the next older were two males, aged twenty-four; the oldest, sixty-eight. Of the whole number, it is stated that in eight instances the patients were negroes; but as a majority of the reports are from foreign sources, this fact has no bearing upon the relative frequency of aneurism in the negro and white races. With reference to the form of the aneurism, it is stated to have been dissecting in seven cases, fusiform in thirteen, and saccular in fifty-five.

Of these seventy-five cases, rupture occurred in fifty-three instances; into the left pleura, in thirteen cases; right pleura, one; left lung, six; left bronchus, sixteen; trachea, two; into the pericardium, two; into the œsophagus, nine. It is stated that in two instances rupture into the thoracic cavity occurred, in one into the abdominal cavity, in one

into the neck. In the remaining twenty-two cases rupture did not occur. Erosion of the vertebræ occurred in twenty-six instances; of both vertebræ and ribs, in eight instances. Erosion of the ribs without erosion of the vertebræ was not noted. An external tumor occurred in only six of the seventy-five cases. The clinical diagnosis was made in thirty-eight instances, and confirmed by the post-mortem examination. The diagnosis was not made during life in thirty-seven cases.

The table is appended.

A Table of Seventy-five Cases of Aneurism of the Descending Portion of the Thoracic Aorta.

No.	Sex.	Age.	Color.	Variety.	Ruptured into	Location of Ribs or Vertebrae	External Tumor.	Diagnosis during Life.	Reporter.	Reference.
1	M.	50	W.	Saccular.	Trachea.	Both.	Yes.	Yes.	Ferguson, F.	Proc. N. Y. Path. Soc., 1888, 155.
2	M.	24	W.	Saccular.	Left bronchus.	Vertebrae.	Yes.	Yes.	Surgeon-General.	Rep. Surg.-Gen. Mar. Hosp., Washington, 1885, 140.
3	M.	41	W.	Saccular.	Left bronchus.	Both.	Yes.	No.	Surgeon-General.	Rep. Surg.-Gen. Mar. Hosp., Washington, 1886, 140.
4	M.	38	W.	Saccular.	Esophagus.	Vertebrae.	Yes.	No.	Meigs, A. V.	Univ. Med. Mag., Philadelphia, 1889-90, ii. 487.
5	F.	38	W.	Saccular.	Esophagus.	Vertebrae.	Yes.	No.	Lucas, J. R.	Tr. Path. Soc., London, 1888-89, xl. 66.
6	M.	30	N.	Fusiform.	Left thorax.	Both.	Yes.	Yes.	Browne.	Brit. Med. Journ., London, 1888-89, xl. 66.
7	M.	49	W.	Saccular.	Left thorax.	Vertebrae.	Yes.	No.	Finlay.	Rep. Surg.-Gen. Mar. Hosp., Washington, 1890, i. 837.
8	M.	38	W.	Saccular.	Left pleura.	Vertebrae.	Yes.	No.	Finlay.	Rep. Surg.-Gen. Mar. Hosp., Washington, 1890, 261.
9	M.	40	N.	Saccular.	Left lung.	Vertebrae.	Yes.	No.	Dalton, H. C.	Rep. Surg.-Gen. Mar. Hosp., Washington, 1890, 258.
10	M.	36	W.	Saccular.	Left bronchus.	Vertebrae.	Yes.	Yes.	Anderson, McCall.	St. Louis Med. and Surg. Journ., 1891, lxi. 84.
11	M.	46	W.	Saccular.	Left bronchus.	Vertebrae.	Yes.	No.	Cayley.	Amer. Journ. Med. Sci., Philadelphia, 1890, N. S., c. 477.
12	F.	28	W.	Saccular.	Left pleura.	Vertebrae.	Yes.	No.	Finlay.	Middlesex Hosp. Rep., 1886, London, 1887, 48.
13	M.	47	W.	Fusiform.	Left pleura.	Vertebrae.	Yes.	Yes.	Gardiner, H. C.	Middlesex Hosp. Rep., 1886, London, 1887, 48.
14	M.	46	W.	Saccular.	Left bronchus.	Vertebrae.	Yes.	Yes.	Fuentes, J. B.	Med. Rec., 1888, xxxiii. 635.
15	M.	36	W.	Fusiform.	Left pleura.	Vertebrae.	Yes.	Yes.	Taylor, J. Y.	Rev. de Clin. Med., Habana, 1889, 53.
16	M.	45	W.	Saccular.	Left pleura.	Vertebrae.	Yes.	Yes.	Taylor, J. Y.	Brooklyn Med. Journ., 1889, iii. 119.
17	M.	48	W.	Saccular.	Left pleura.	Vertebrae.	Yes.	No.	Biggs, H. M.	Brooklyn Med. Journ., 1889, iii. 119.
18	M.	50	W.	Saccular.	Left pleura and lung.	Vertebrae.	Yes.	No.	Biggs, H. M.	Amer. Journ. Med. Sci., Phila., 1889, N. S., xlvii. 219.
19	F.	68	W.	Saccular.	Left pleura.	Vertebrae.	Yes.	No.	Biggs, H. M.	Amer. Journ. Med. Sci., Phila., 1889, N. S., xlvii. 219.
20	M.	50	W.	Saccular.	Pericardium.	Vertebrae.	Yes.	No.	Biggs, H. M.	Amer. Journ. Med. Sci., Phila., 1889, N. S., xlvii. 219.
21	M.	42	W.	Dissecting.	Pericardium.	Vertebrae.	Yes.	No.	Biggs, H. M.	Amer. Journ. Med. Sci., Phila., 1889, N. S., xlvii. 219.
22	F.	33	W.	Saccular and fusiform.	Left pleura.	Vertebrae.	Yes.	Yes.	Biggs, H. M.	Amer. Journ. Med. Sci., Phila., 1889, N. S., xlvii. 219.
23	F.	59	W.	Saccular and fusiform.	Left pleura.	Vertebrae.	Yes.	Yes.	Biggs, H. M.	Amer. Journ. Med. Sci., Phila., 1889, N. S., xlvii. 219.
24	M.	46	W.	Saccular.	Left pleura.	Both.	Yes.	Yes.	Helb and Wills.	Westminster Hosp. Rep., London, 1890, vi. 111.
25	F.	55	N.	Saccular.	Left pleura.	Both.	Yes.	Yes.	Shapleigh, J. B.	Boston Med. and Surg. Journ., 1883, cviii. 443.
26	M.	56	W.	Saccular.	Abdominal cavity.	Vertebrae.	Yes.	Yes.	Denison, C.	Denver Med. Times, 1883, ii. 65.
27	M.	66	W.	Saccular and dissecting.	Left bronchus.	Vertebrae.	Yes.	No.	Fowler, J. K.	Tr. Path. Soc., London, 1881-82, xxxiii. 90.
28	M.	50	W.	Saccular.	Left lung.	Both.	Yes.	Yes.	Barker, A. M.	Buffalo Med. and Surg. Journ., 1883-84, xxiii. 451.
29	M.	37	N.	Saccular.	Esophagus.	Vertebrae.	Yes.	Yes.	Morrison, W. N.	Med. and Surg. Rep., Philadelphia, 1879, xli. 449.
30	F.	55	W.	Saccular.	Left pleura.	Vertebrae.	Yes.	No.	Wood, C. A.	Med. News, Philadelphia, 1882, xl. 251.
31	M.	38	W.	Saccular.	Right pleura.	Vertebrae.	Yes.	No.	Morgan, J. H.	Tr. Rhode Island Med. Soc., 1892, ii. 484.
32	M.	45	W.	Saccular.	Left pleura.	Vertebrae.	Yes.	Yes.	Choctek, F.	Wien. Med. Bl., 1881, iv. 325.
33	M.	43	W.	Saccular.	Left pleura.	Vertebrae.	Yes.	No.	Rogers, A. W.	Tr. Med. Soc. N. J., Newark, N. J., 1882, 243.

34	F.	58	W.	Fusiform.	Left bronchus.	Vertebra.	Yes.	St. George's Hosp. Rep., 1879, London, 1880, x. 98.
35	M.	40	W.	Saccular.	Esophagus.	Vertebra.	No.	St. George's Hosp. Rep., 1879, London, 1880, x. 98.
36	M.	32	W.	Fusiform.	Esophagus.	Vertebra.	Yes.	Brit. Med. Journ., London, 1880, ii. 547.
37	M.	55	W.	Fusiform.	Left lung and pleura.	Vertebra.	No.	Glasgow Med. Journ., 1894, xlii. 377.
38	M.	57	W.	Saccular.	Neck.	Vertebra.	Yes.	Dublin Journ. Med. Sci., 1892, xciv. 406.
39	M.	33	W.	Saccular.	Left pleura.	Vertebra.	No.	Tr. Path. Soc., London, 1891-92, xlii. 38.
40	M.	47	W.	Fusiform.	Left bronchus.	Vertebra.	Yes.	Maritime Med. News, Halifax, 1891, iii. 207.
41	M.	37	W.	Saccular.	Left pleura.	Vertebra.	No.	Rep. Maritime Hosp., Washington, 1891, xix. 213.
42	M.	36	W.	Saccular.	Esophagus.	Vertebra.	Yes.	Rep. Maritime Hosp., Washington, 1891, xix. 214.
43	M.	24	W.	Saccular.	Thoracic cavity.	Vertebra.	No.	Rep. Maritime Hosp., Washington, 1891, xix. 216.
44	M.	35	N.	Fusiform.	Left bronchus.	Vertebra.	Yes.	Rep. Maritime Hosp., Washington, 1891, xix. 210.
45	M.	46	W.	Saccular.	Left pleura.	Vertebra.	No.	New York Med. Journ., 1891, liv. 345.
46	M.	35	W.	Saccular.	Left pleura.	Vertebra.	Yes.	Occidental Med. Times, 1893, ix. 411.
47	M.	55	W.	Saccular.	Esophagus.	Vertebra.	No.	Occidental Med. Times, 1893, ix. 377.
48	F.	66	W.	Saccular.	Left pleura.	Vertebra.	No.	Glasgow Med. Journ., 1894, xlii. 377.
49	F.	66	W.	Saccular.	Left pleura.	Vertebra.	Yes.	Rev. méd. de l'Est, Nancy, 1879, xl. 499.
50	M.	55	N.	Dissecting.	Left lung.	Vertebra.	Yes.	Lancet, London, 1892, i. 1069.
51	M.	43	W.	Dissecting.	Left lung.	Vertebra.	Yes.	Amer. Journ. Med. Sci., Phila., 1886, N. S., xc. 155.
52	M.	43	W.	Saccular.	Left lung.	Vertebra.	Yes.	Tr. Acad. Med., Dublin, Ireland, 1885, iii. 331.
53	M.	57	W.	Saccular.	Left bronchus.	Vertebra.	Yes.	Brit. Med. Journ., 1881, i. 929.
54	M.	34	W.	Fusiform.	Left pleura.	Vertebra.	Yes.	St. George's Hosp. Rep., London, 1880, x. 98.
55	M.	64	W.	Saccular.	Left pleura.	Vertebra.	No.	Maryland Med. Journ., Baltimore, xlii. 505.
56	M.	4	W.	Saccular.	Trachea.	Vertebra.	No.	Tr. Path. Soc., London, 1891-92, xlii. 38.
57	M.	42	W.	Dissecting.	Left bronchus.	Vertebra.	No.	Med. News, Philadelphia, 1893, lxiii. 202.
58	M.	..	W.	Saccular.	Esophagus.	Vertebra.	No.	Mont. Med. Journ., 1891-92, xx. 649.
59	M.	..	W.	Saccular.	Left pleura.	Vertebra.	Yes.	Mont. Med. Journ., 1891-92, xx. 649.
60	F.	..	W.	Saccular.	Left pleura.	Vertebra.	Yes.	Med. Times and Gazette, London, 1882, ii. 376.
61	F.	24	W.	Saccular.	Left pleura.	Vertebra.	Yes.	Med. Annals, Albany, 1881, ii. 58.
62	M.	45	W.	Saccular.	Left bronchus.	Vertebra.	No.	Med. Herald, Louisville, 1881, iii. 1-4.
63	M.	47	N.	Saccular.	Left bronchus.	Vertebra.	No.	St. George's Hosp. Rep., 1879, London, 1880, x. 98.
64	M.	32	W.	Fusiform.	Left bronchus.	Vertebra.	No.	Med. Record, New York, 1880, ii. 541.
65	M.	..	W.	Saccular.	Left bronchus.	Vertebra.	Yes.	Cincinnati Lancet-Clinic, 1881, N. S., vii. 133.
66	M.	34	N.	Saccular.	Left bronchus.	Vertebra.	Yes.	London Lancet, 1878, ii. 511.
67	F.	47	W.	Fusiform.	Left bronchus.	Vertebra.	Yes.	Dublin Journ. Med. Sci., 1880, 3d S., lix. 392.
68	M.	42	W.	Fusiform.	Left bronchus.	Vertebra.	Yes.	Tr. Path. Soc., Philadelphia, viii. 55.
69	M.	38	W.	Fusiform.	Left bronchus.	Vertebra.	No.	Mont. Gen. Hosp., 1880, i. 262.
70	M.	35	W.	Saccular.	Left bronchus.	Vertebra.	Yes.	Med. Gazette, New York, 1880, vii. 685.
71	M.	..	W.	Saccular.	Left pleura.	Vertebra.	Yes.	Arch. f. Path. Anat. Berl., 1879, lxxviii. 357.
72	M.	67	W.	Dissecting.	Left pleura.	Vertebra.	Yes.	Bull. et Mém. Soc. Méd. des Hop. de Par., 1891, S. 3, viii. 349.
73	M.	68	W.	Saccular.	Left pleura.	Vertebra.	No.	Bull. Soc. Phys. et Anat. de Par., 1889, lxtv. 623.
74	M.	33	W.	Saccular.	Left bronchus.	Vertebra.	Yes.	Gaz. des Hop. de Par., 1890, lxxii. 413.
75	M.	46	W.	Dissecting.	Left bronchus.	Vertebra.	Yes.	

PLEURISY COMPLICATED WITH LOBULAR PNEUMONIA; NEPHRITIS, WITH ENLARGED HEART; DIABETES, WITH ENLARGEMENT OF THE HEART.

CLINICAL LECTURE DELIVERED AT THE CHICAGO POLYCLINIC.

BY JOSEPH M. PATTON, M.D.,

Professor of Internal Medicine in the Chicago Polyclinic.

PLEURISY COMPLICATED WITH LOBULAR PNEUMONIA.

CASE I.—Gentlemen, this man is thirty-six years old. He appeared in the clinic two weeks ago, complaining of general weakness and a little cough. He stated that he had had, a few days previous to coming here, a slight pain in the left side of his chest, but that it had disappeared. His breathing was twenty to the minute, pulse 100, temperature 100° F. He did not expectorate any with his cough, and examination at the time of his first appearance showed a slight diminution of the chest movements on the left side; the vocal fremitus and percussion resonance were unchanged, except below the seventh rib, where there was partial dulness behind, and laterally in the anterior axillary line, below the seventh rib, there was an area of flatness. Over this latter area there was an absence of the respiratory sounds, while respiratory sounds were to be heard faintly over the whole lower portion of the chest, both anteriorly and posteriorly, with the exception of the area of flatness before alluded to. There were well-marked pleuritic friction-sounds posteriorly. These sounds were to be heard upward as far as the middle of the scapula. By exploration of the area of flatness in the anterior axillary line with a hypodermic needle an abundance of fluid was demonstrated. As this area was small, a puncture above the seventh rib failed to bring fluid. Evidently this case is one of plastic pleurisy, with a small amount of fluid in the bottom of the pleural cavity. As this fluid was apparently not encapsulated, and there were no pressure-effects from its presence, no attempt at aspiration was made. A week later the patient again pre-

sented himself. The pleuritic friction-sounds were now not so numerous as formerly, and in one or two spots dry, rubbing friction-sounds were to be heard. But now a new condition presented itself. On a level with the nipple, and just posterior to the left mammillary line, there was a spot of well-marked dulness about as large as a silver dollar; entirely surrounding this spot there was the usual lung resonance. The pulse, temperature, and respiration did not vary materially from the previous record. Auscultation of the area of dulness showed well-marked bronchial breathing and bronchophony, limited strictly to the area of dulness. The distinctness with which these sounds were to be heard indicated, when the small-sized area of dulness is taken into consideration, that this spot of consolidated lung-tissue was in the immediate proximity of the visceral pleura. To-day, on examination, we find that over this spot of consolidation there is not as well-marked bronchial breathing as there was last week, and occasionally over and around the spot there are moist subcrepitant râles. Posteriorly, where the pleuritic friction-sounds were formerly so abundant, we find two spots of consolidation with distinctly localized dulness, bronchial breathing, and bronchophony. One is located just beneath the angle of the scapula; the other is lower and more anteriorly situated. Between these spots there is an area of lung-tissue, about two inches wide, in which the physical signs are normal. In order that you may appreciate the difference between the physical signs of consolidated lung-tissue and those of a cavity in the lung, I will place alongside of the patient this young man, who has a cavity in his left apex. A comparison of the physical signs in these cases, which you make for yourselves, will furnish a graphic demonstration of the differential diagnosis of these conditions. Over the cavity you obtain a percussion resonance of high pitch, but ringing in quality, suggestive of emptiness, and giving the so-called cracked-pot resonance. Over the consolidation you get a short, woody, high-pitched sound, hard in character and suggestive of density. The respiratory sound over the cavity gives a high-pitched respiration, hard and somewhat metallic in character, loud and easily heard, while the expiration sound is much the same in character, rather higher in pitch and longer than the inspiration. It is slightly, but not distinctly, amphoric in quality. Over the area of consolidation the respiration is much fainter than over the cavity, and the sound is more distant from the ear; it is high-pitched, but soft and blowing in character, the expiration being longer and more easily heard than the inspiration. It is true bronchial breathing. The voice-sound over the cavity is loud, and has an aggressiveness not

found under other circumstances. It has a ringing musical quality indicative of an air-space; then, by directing the patient to count in a whisper, you will notice that the articulation of a word is plainly appreciated, as though the speaker had his mouth at the bell of the stethoscope, which is practically the case, as there is a continuous tube from his larynx to your ear, with nothing between but the diaphragm formed by the tissues of the chest-wall, which is quite thin, and there is no pulmonary tissue between the wall of the cavity and the chest-wall. This characteristic voice-sound is pectoriloquy. The voice-sound over the consolidation, on the other hand, is not so loud; it is very high in pitch, tubular in quality, and has an isolated character rather than the disseminated note of normal vocal resonance. It is characteristic bronchophony, and the articulation of the words cannot be made out.

We have here, then, a lobular pneumonia associated with plastic pleurisy. Just what the relation between the two conditions is, it is not easy to make out. Apparently, as far as we can determine, the pleurisy antedated the pneumonia, though of that fact we must not be too certain, as lobular pneumonia is of notoriously insidious and irregular course. The association of acute pleurisy and lobular pneumonia is of rather infrequent occurrence outside of the history of tuberculous processes in the lungs, where they are apt to form part of the current history of any case of pulmonary tuberculosis. On the other hand, the association of pleurisy and lobar inflammation of the lung is of quite frequent occurrence. Lobular pneumonia, as you are aware, when not of tubercular origin, is usually confined to early life in association with catarrhal inflammations of the respiratory tract, or it occurs with the debility incident to senile life, or in persons whose vitality has been compromised by various acute affections. It is usually a matter of direct extension of inflammation along the respiratory tract, or by aspiratory infection of hitherto uninvolved lobules from some previously diseased area, and is probably produced in the majority of instances in the latter manner. This affection runs a very irregular course, and presents a correspondingly irregular group of symptoms. It may last varying lengths of time, as there may be a succession of lobular consolidations in various portions of the lung, one group of lobules becoming consolidated just as a previously affected group shows signs of resolution, as we have exemplified in this case. With each additional focus of disturbance there will be an exacerbation in the temperature and pulse-rate, with a corresponding prostration of the patient. There may be, as in this case, little or no cough or expectoration. When the lower portion of the lung is affected there is, as in

this patient, usually a milder type of symptoms. When lobular pneumonia occurs in the upper portion of the lung, especially as a complication of pulmonary tuberculosis, the occurrence is apt to be marked by bronchial hemorrhage from the intense bronchial congestion incident to the establishment of a new inflammatory focus. In old people this disease is apt to develop very slowly and insidiously. Its physical signs may be so masked by concomitant signs of bronchitis and by emphysematous and indurative changes in the pulmonary parenchyma incident to senile life, or depending on various pulmonary incidents in the previous history of the patient, that a diagnosis is very seldom arrived at, if at all. It is only by repeated and careful examination of the lungs that we can be sure of the advent of lobular pneumonia. This form of inflammation of the lung will be met with as a sequel of typhoid fever and la grippe in adults.

During the past nine months I have seen three cases of lobular pneumonia associated with plastic exudate on the pleura, occurring as a sequel of la grippe and typhoid. In these cases the physical signs were not at all typical, because of the presence of a considerable exudate on the pleural surface. The course of these cases was exceedingly slow, and considerable induration of the lower part of the lung was the result. In the post-typhoid case resolution was so long delayed that lung abscess was suspected. Recognizing the fact that a diagnosis of the latter condition could not be made under existing states from the physical signs of lung abscess, exploration of the lung with a long aspirating needle was made in a number of different directions, without finding any pus. Recovery was, however, complete after a considerable length of time, with only slight impairment of the lung action.

In our patient here the main question is whether or not this process is tubercular in nature. The pleurisy here began first, in all probability, and while plastic in nature its manifestations were not very active. These moderately free exudates, with a small amount of fluid accompanied by masked symptoms, are in a measure characteristic of tubercular pleurisy. The association here of lobular pneumonia, for which there is no particular cause as far as we can determine, is still further indicative of a tubercular origin. The view adopted by some authorities, that all pleurisies are tubercular, cannot be sustained at present, and therefore considerable importance in a prognostic sense is attached to the question of etiology in this case.

As he is not coughing or expectorating anything, we have been able so far to secure only mucus from the upper respiratory tract, and

that does not contain bacilli. The fact that the man is better than he was a week ago, with less temperature, lower pulse, and signs of resolution in the spot of consolidation, argues for the non-tubercular character of the disease.

The treatment has been rest, largely a milk diet, with medicinally ten drops of the tasteless tincture of iron, with half a drachm of tincture of cinchona bark, with one-twentieth of a grain of strychnia sulphate, given every four hours. The nature and the stage of the pleurisy contraindicate any active measures for counter-irritation. The absence of bronchial catarrh, cough, and expectoration indicates the uselessness of expectorant medicines. The changes in the areas of consolidation will pursue their course uninfluenced by any medicines we can give, except so far as we may be able to improve the nutrition and resistance of the patient, and thus favor a termination by resolution.

The occurrence of additional and successive spots of consolidation is a matter largely accidental, and over which we have no control. The dose of strychnia should be large for stimulating the respiratory centre and the right heart, two weak spots in these patients. We use strychnia in this case as a stimulant, and not as a tonic. The doses should be, therefore, above one-thirtieth of a grain, and in more severe and acute cases should be pushed to the point of producing its physiological effect. The stimulant dose of strychnia is particularly indicated in broncho-pneumonia occurring in infancy, where I think the tendency is usually to give too small doses. You will remember that in early life the mechanical conditions governing the pulmonary circulation and the oxygenation of the blood are different from adult life. In infancy the relative capacity of the air-cells to the size of the lung is small, the air-cells being not fully developed and the walls being thick. The blood-vessels are tortuous and loosely supported by connective tissue, and stagnation of the blood-current occurs easily. The bronchial membranes are loose and corrugated, and the lumen of the tubes, therefore, is more apt to be clogged with mucus. There is also a marked tendency to epithelial proliferation and consequent mechanical obstruction. For these reasons there are in children, when suffering from pneumonia, special indications for stimulating the respiratory centre and the heart.

NEPHRITIS, WITH ENLARGED HEART.

CASE II.—This young woman comes to us from the Eye Clinic for a diagnosis of her condition. Three months ago she had a miscarriage at four months, and since that time she has had trouble with her eyes.

The oculist's examination showed a recent retinitis. There are, however, some spots on the retinae which appear to have been of much longer duration than the recent retinal changes. What the oculist wishes to know is whether the retinal changes depend simply on the conditions which caused or accompanied her miscarriage, or if a more remote cause could be found which would explain the presence of the older areas of retinal inflammation. This question, as you can readily see, has considerable bearing on the prognosis in regard to her sight. Her history up to the time of the miscarriage is of negative interest.

An examination of her heart shows marked enlargement of the left ventricle, due mainly to hypertrophy. The apex-beat is in the sixth interspace, one inch to the left of its normal situation; the left line of dulness is just inside the left mammillary line; the right line of dulness is unchanged. The visible area of cardiac motion is considerably increased. The first sound is strong and booming; the second aortic sound is much increased in intensity, while there is but little increase in the pulmonic second sound. There are no murmurs of any character to be heard. As there is no obstruction to the emptying of the left heart to be found within the chest, and as her vessels are apparently healthy, we look to the kidneys for an explanation of the cardiac enlargement. She is passing twenty-two ounces of dark urine, with a specific gravity of 1028; it contains a large amount of albumin and a few granular casts. She denies having had any swelling of the feet, except just after getting out of bed after her recent illness. But, you notice, I can pit the tissues just under the malleolus. It is not enough, however, to have attracted her attention. Her digestion is fair, and she has no other evidences of the various degenerations, which occur as a result of the malassimilation and perverted nutrition incident to the history of chronic parenchymatous nephritis, other than the retinal involvement. Undoubtedly the occurrence of retinitis dates beyond the time of her miscarriage, and this fact will probably make the oculist conservative in his promises of improvement in her vision. The extent of the cardiac changes demonstrates that the kidney lesion is not of recent origin. While the dominant feature of this cardiac alteration is hypertrophy, we must remember that, aside from the increase in the ventricular cavity which always accompanies any considerable hypertrophy of its walls, there will sooner or later be a progressive dilatation, depending on muscular weakness, developing as a result of malnutrition incident to the progress of the kidney lesion. As the heart is perfectly competent at present, the treatment should be confined to the management of the kidney lesion and the maintenance of the general

nutrition, and of the cardiac nutrition in particular, so as to postpone the evil day as long as possible. Iron, strychnia, and arsenic are valuable as tonics to combat the development of the anæmic conditions which are a progressive feature of the latter stages of nephritis. It is probable that intestinal toxæmias, the result of imperfect elimination, have much to do with these anæmic states through their effect on hæmogenesis. Constant attention, therefore, should be given to the digestive apparatus. A warm, dry climate is essential for these patients, and attention should be given to general hygiene. Exercise should be regulated with a view to balancing the tissue changes and elimination as nearly as possible. The nitrogenized foods should be limited.

DIABETES, WITH ENLARGEMENT OF THE HEART.

CASE III.—This man is sixty-one years old. He was also referred from the Eye Clinic for an opinion. He has a cataract in the left eye, and the oculist desires an opinion as to his general condition, in order to determine the advisability of operation. The cataract is immature, and extraction would have to be deferred some time unless a ripening operation should be attempted.

He tells us that he has been treated for diabetes for some time without much change for the better. His general nutrition does not appear to be very good, though he has no special complaint aside from general weakness and shortness of breath on exertion. The quantity of urine in twenty-four hours is four quarts, specific gravity 1030, with a large percentage of sugar.

On inspection of the cardiac area, you will see some slight diffused motion, but the apex-beat is not defined. This you can verify by palpation. Auscultation shows a weak first sound, with intensification of the second pulmonic sound. The left line of dulness is one-half inch inside the left mammillary line, at the level of the fourth rib; the right border is half an inch to the right of the right sternal border. The apex-beat is at the upper border of the sixth rib. There is a systolic murmur heard in the mitral area and transmitted into the axillary region. This murmur can be heard behind very faintly; it is also heard all over the cardiac area, and can be traced along the carotid and subclavian arteries. It is somewhat louder in the left carotid and subclavian arteries than in the right. The points of greatest intensity are the base of the heart at the right edge of the sternum, and in the mitral area. The murmur has a distinct musical tone, rather hard in quality and high in pitch for the first half of the murmur, while the last half is soft and blowing in character. The musical part of the

murmur can be heard as distinctly at the mitral area as at the base of the heart. The murmur, as you see, has a peculiar area of distribution, and the question arises whether there may not be two murmurs, both systolic in time,—one at the mitral and one at the aortic opening. If the basic portion of the murmur were produced at the aortic valves, it should be heard louder in the right cervical vessels than in the left, and would probably not be heard in the subclavian vessels. Still, this is only theoretical, and the exclusion of an aortic lesion here rests on the absence of the consecutive changes in the left ventricle which would follow such a lesion. The right-sided hypertrophy, the left auricular dilatation, the slight enlargement of the left ventricle, such as would develop from mitral regurgitation, and chiefly the absence of any considerable hypertrophic dilatation of the left ventricle, sustain the opinion that this murmur, in spite of its unusual area of distribution, is derived from a mitral lesion. Although there is no history in this case pointing to the origin of the cardiac trouble, there is probably no direct connection between it and the diabetes. While the heart muscle may partake of the general tissue degeneration which accompanies diabetes, and cardiac enlargement and failure may be a prominent feature of the latter history of diabetics, still, endocardial or valvular changes are not frequently of diabetic origin. The question of operation here must be decided in the negative. In the present condition of this man's nutrition, a ripening operation would probably be unsuccessful, and an extraction, presuming the cataract were mature, would probably result in failure of the reparative process.

The treatment in this case resolves itself into the treatment of the cardiac condition and of the diabetic state. For the heart we would give arsenic and strychnia, the former in small, the latter in stimulant doses, one-twentieth of a grain three or four times a day. For the nocturnal dyspnoea, which is likely to appear in this case, morphia, hypodermically, is the best remedy. The diabetes in this particular instance will probably have to be managed chiefly through the diet, as, on account of the cardiac complication, it will be impossible to use large-enough doses of any of the alkaloids of opium to be of service in controlling the diabetes. Opium is the most reliable remedy in diabetes, and good results are often obtained when it can be administered in large-enough doses. This man was started on one-half-grain doses of codeia, but this amount produced depression and drowsiness. As smaller doses will probably not affect the diabetes, we shall not be able to count on any result from opium. We shall therefore have to adopt some of the other remedies used in this disease.

Our knowledge of the intimate nature of diabetes is very limited, and will probably remain so until physiology enlightens us as to the nature of the processes through which sugar is formed, transformed, and eliminated by the economy. Clinically, diabetes may be divided into two principal classes. First, those cases due to excessive sugar-formation, under which may be included those due to faulty diet, those denominated hepatic diabetes, and the so-called hereditary cases. Second, those due to diminished consumption of sugar, including those cases called cerebral diabetes and pancreatic diabetes. The first class are characterized by their chronicity and amenability to treatment; the second class by their rapid course and resistance to therapeutic measures. The main feature of the therapeutics of the first class is the limitation of sugar and sugar-forming foods. Saccharin may be used in place of sugar, or the sugar gradually reduced, and gluten-flour may be substituted for ordinary flour. The diet for this case should include such articles as all kinds of fresh meat, fish and meat soups, cabbage, cauliflower, spinach, turnips, tomatoes, onions, mushrooms, lettuce, celery, water-cress, eggs and egg-custard, gelatin, isinglass, Iceland moss, jellies, oranges, olives, lemons, black and red raspberries, currants, cucumbers, and radishes. There are other substances which should be taken rather sparingly, as peaches, apples, apricots, cherries, melons, almonds, filberts, walnuts, and hazel-nuts. Personally, I do not allow grapes, although they are admitted to the diet-list by many. Among the articles prohibited are wheat, barley, rice, and oatmeal preparations, including bread, pastry, crackers, and pancakes, when made of these substances; corn-flour, arrowroot, potatoes, beans, peas, asparagus, beets, parsnips, carrots, turnips, rhubarb, raisins, prunes, figs, and chestnuts.

Fresh air and proper exercise are very important, and there is no disease in which general hygiene is more important than in diabetes. Claims have been made for an exclusive skimmed-milk or buttermilk diet, also for an exclusive meat diet; but, altogether, a carefully-selected mixed diet is the most satisfactory, as everything depends on the maintenance of the general nutrition.

Medicinally, many drugs are used in diabetes, like all other diseases of indefinite etiology; the remedial list of drugs is extensive. In our experience, opium in some form, usually codeia, along with arsenic and strychnia, has been the most useful in controlling the amount of sugar in the urine, although it must be borne in mind that not in all cases does improvement follow the diminution of sugar in the urine. The dose of codeia is from one-quarter to one-half a grain, increasing to one grain, three times a day, or more, if no sedative effects are shown.

Occasionally a cholagogue should be given. Jambul has not sustained the claims made for it as a remedy in diabetes. Pancreatic preparations have been used, but do not appear to be specially beneficial. Benzosol has recently been advocated for diabetes, but in true cases of diabetes in this clinic it has altogether failed. It is quite possible that it might be of use in cases of simple glycosuria, depending on toxæmias arising from intestinal ferments. Antipyrin, salol, thymol, lactic acid, and other drugs of the same class, have their advocates, but it is questionable if any of them have any specific value. Lactic acid has been used as a substitute for sugar. It is said that from one-half to a drachm of lactic acid with one ounce of alcohol, given in twelve ounces of water at meal-time, with the patient on a meat diet, will furnish no sugar-forming materials, yet will take the place of sugary foods. This is doubtful, and, as before stated, we believe the most reliable treatment for those cases which are amenable to our present therapeutic measures, consist in general hygiene, a carefully selected diet, intestinal antisepsis, attention to the functions of the liver, and the administration of iron and strychnia in connection with the use of opium.

FOUR CASES OF LEUKÆMIA.

A LECTURE DELIVERED BEFORE THE LOUISVILLE CLINICAL SOCIETY.

BY CARL WEIDNER, M.D.,

Associate Professor of the Practice of Medicine and Director in the Laboratory of Histology and Pathology in the Kentucky School of Medicine; Member of the Louisville Clinical Society, etc., Louisville, Kentucky.

GENTLEMEN,—I will endeavor to entertain you this evening by exhibiting some specimens and make a few remarks on leukæmia or leucocythæmia. It has been my fortune or misfortune to see four cases of this disease within the last five years. Two of these cases were in males and two in females. Their ages ranged from sixteen to thirty-five years, being sixteen, twenty-one, thirty-four, and thirty-five, the two latter being females. Two of the cases were referred to me for an examination of the blood; the other two I saw at the bedside or saw them personally as the physician in attendance. I have nearly complete histories of two of the cases. The other two I shall have to rely largely upon my memory to reproduce.

CASE I.—J. S., a male, aged fifteen and one-half years, sent to me by Dr. Leachman for an examination of his blood May 18, 1892. The history is as follows: Was taken ill during his fifteenth year while attending school; has grown very tall within the last year. The first symptoms observed were that he became tired very easily; some shortness of breathing; headache; appetite good; bowels at this time fairly regular, later becoming somewhat loose; he sleeps well; complains of pain in the nape of his neck, which is relieved by pressure; drinks a great deal of water; passes urine freely; nothing abnormal about the urine; quantity of uric acid somewhat increased. An examination shows rapid pulse; nothing abnormal with the heart; respiratory organs normal; color of mucous membranes rather pale; veins of the breast, abdomen, and neck distended, pulsating slightly in the neck; abdomen large and firm, and in left side there is a swelling reaching to the median line and down to about the ilio-pubic line; swelling is painless and flat

on percussion. I made the diagnosis of enlarged spleen. The swelling was slightly notched in the centre. Liver normal; pulse 100; temperature $100\frac{1}{2}^{\circ}$ F.; respiration 34; slight cough. There is no hemorrhage from the nose or any other portion of the body, and, outside of the above symptoms, no subjective complaint. Family history as follows: Father and mother both living,—fine, healthy-looking people. Father has had an acute attack of gout and went to Carlsbad two years ago. There are eight other children in the family, all healthy. The patient is very tall for his age, five feet and eight inches. Blood count by the hæmatocytometer gives the following results: Total number of blood-cells in one cubic millimetre reduced to 2,812,500; relationship of red to white blood-cells is as markedly changed as I have seen in any case, being two hundred and twenty-four red cells and one hundred and fourteen white, relationship about one to two. Amount of hæmoglobin estimated by Fleischl's hæmometer about fifty per cent.

At the next office visit his condition seemed to be somewhat improved. The treatment, meantime, has been Fowler's solution in doses of from three to seven drops; then reduced from seven to three drops. In addition, the syrup of the iodide of iron has been given and an ice-bag applied over the tumor one hour each day. The above quantity of Fowler's solution caused some nausea and also a little puffiness of the eyelids. So much for the history.

I saw this young man first in May, 1892, and in September of the same year for the last time. I received notice that he died about December 1, 1892, after hemorrhages from the various mucous membranes lasting for four days. He was then sixteen years and one month old.

The character of the blood-cells observed in this case was very variable. (Fig. 1.) As we have seen, the total number was reduced to about one-half the normal amount, the red ones suffering most. Of the red blood-cells a good many were smaller, so-called microcytes; a good many distorted in shape, the so-called poikilocytes. I also found several nucleated red blood-cells. The white blood-cells presented the following (see Fig. 2): A moderate amount of small lymphocytes, small blood-cells about the size of normal red ones, containing each a single nucleus. The polynuclear cells, which in the normal blood should be about seventy-five per cent., were present in about half the number of the entire white cells. The rest consisted of large mononuclear lymphocytes, as ordinarily found in blood. The majority were very large white cells, containing large, mostly peripherally-situated nuclei, with feeble staining quality, which corresponded on close examination to the so-called myelocytes or Markzellen of H. F. Müller.

In addition to that, there were by a rough estimate about six per cent. of eosinophilous cells, those cells containing a large amount of eosinophile granules, as described by Ehrlich. The diagnosis made from this blood examination was leukæmia of the variety which we know as the mixed form,—that is, the splenic and myelogenic form, or lienomyelogenous leukæmia.

The following are the notes on the autopsy held by Drs. A. M. Vance and Louis Frank :

“Opening the abdominal cavity, the liver and spleen appeared, covering and crowding the stomach up and the intestines down, so that only a few loops of the intestine were visible. The liver extended in the mammary line twelve centimetres below the border of the ribs and in the median line the right lobe fifteen centimetres and the left lobe eleven centimetres below. The diaphragm extended on the right side to the third rib and on the left side to the fourth rib. The spleen extended below to a point on a line with the anterior superior spinous process of the ilium, and in front to within two centimetres of the median line, above in the axillary line beneath the fifth rib. The tail of the pancreas was pushed over to the median line and downward. The spleen was thirty centimetres long, seventeen to eighteen centimetres in width, and eight centimetres in thickness, weight twelve pounds. Liver eleven centimetres thick, twenty-six centimetres in the vertical and thirty centimetres in the transverse axis, weight ten pounds.

“The blood showed a peculiar chemical reaction in coming in contact with ‘ivory soap,’ forming apparently muscin. It decomposed with an excessive formation of sulphuretted hydrogen before an examination was made either chemically or microscopically. A previous examination *in vitam* by Dr. Weidner showed the relation of white and red corpuscles. (Fig. 1.) The liver showed on the cut surface an increase in size of acini; was firm and pale. Spleen hard, containing many white spots varying in size from that of a pin-head to larger than a dollar. Infarcted and degenerated spots. Cut surface nutmeg color in appearance. Kidneys large, not hard. Capsule non-adherent; surface pale, as was also the cut surface. Cortex swollen, pale, markings indistinct, granular, cloudy, degenerated. Suprarenal capsules normal. Retroperitoneal and mesenteric glands enlarged to size of walnuts; also pale, slightly cheesy.”

CASE II.—The next case is Mrs. L., aged thirty-four years, married, no children. She had been sick for about fifteen years. She was under the care of Dr. J. M. Holloway, who called me in consultation. The symptoms previously seemed to have been those of marked anæmia.

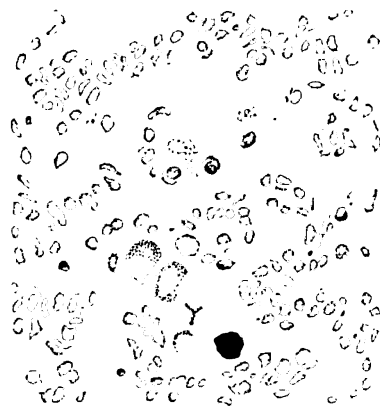


FIG. 1.—POIKILOCYTOSIS OF CASE I.

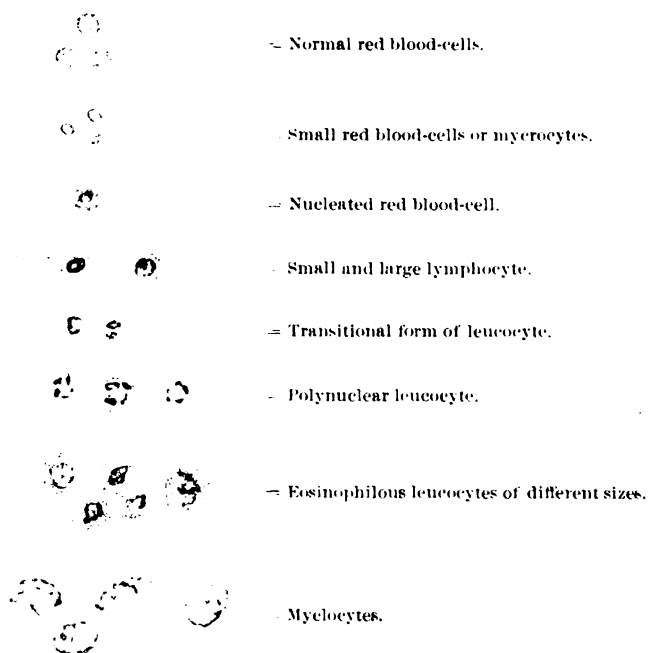


FIG. 2.—BLOOD-CORPUSCLES OF CASE I.

I think the doctor told me he had made out enlargement of the spleen since fifteen years. At the time I saw her she presented mainly the signs of most marked anæmia. She was quite pale, almost waxy in color; mucous membranes blanched as well as the skin. She suffered with headache; did not sleep well; had had no hemorrhages as far as I know. The main complaint was some difficulty in breathing; she had considerable pain in the lower part of the left lung; fulness of the abdomen; deficient appetite, and, lately, slight fever.

A physical examination revealed a very large tumor springing from the left hypochondrium, extending about one and one-half inches to the right of the umbilicus down to the iliac fossa. It seemed to impinge closely against the ilium. There was a distinct notch about the centre of it on the right side, otherwise the tumor was smooth and gave rise to no pain. In addition to the tumor there were several enlarged lymphatic glands in the iliac region, but none could be made out elsewhere.

The blood examination showed a somewhat different picture from the previous case. It presented a good many evidences of pernicious anæmia. The red cells were altered in shape, not many small ones, but they seemed to be deficient in coloring matter, to judge by the staining reagents. The relationship of the white to the red cells was one to fifty. The cells present in this case were mainly the mononuclear lymphocytes and the ordinary form of polynuclear white blood-cells. I did not find any cells, however, such as were detected in the other case,—those large mononuclear cells, so-called myelocytes or medullary cells of Müller. Diagnosis made, splenic and lymphatic leukæmia.

The autopsy, which was unfortunately only partial on account of the family objecting, revealed that the blood was very pale, very much like the color of what the Germans call *Milch chocolate*. The spleen weighed about fifteen pounds. (Figs. 3 and 4.) It was perfectly smooth, firm, and not adherent; the cut surface was very mottled, showing a red pulp and large, whitish-yellow trabeculæ (Fig. 5); the liver was pale and markedly enlarged, the kidneys pale to an extreme degree and slightly enlarged. This case was peculiar because of its extremely long duration.

CASE III.—Mrs. F., also thirty-five years of age, the mother of five children, the youngest having been born three months before I saw the patient. Since that time she dates her sickness. Dr. H. E. Pelle, who called me in to see the lady at the time, made the diagnosis of leukæmia, and by his kindness I am able to read the following notes

to complete the history : " Mrs. F. was referred to me by Dr. McMurtry on June 25, 1895. She is thirty-four years old, the mother of five children, the youngest being three months of age. When I first saw her she was suffering with diarrhoea, which yielded promptly to treatment, but returned ten days later and continued more or less until her death. She complained of pain and fulness in the abdomen, and occasionally passed blood from the bowels ; also had some hemorrhage from the nose. She is very pale, short of breath, and has all the indications of an anæmic condition, with a temperature varying from normal to 102° F. There is also some hemorrhage into the skin about the extremities, and there are numerous small abscesses over the body, varying in size from a millet-seed to those containing about a drachm of pus." One of these was opened at the time I visited the patient, being situated in the upper eyelid, discharging a drachm of creamy pus. None of these abscesses were painful, and seemed to have developed without pain. There was a tumor in the left hypochondriac region and the left side of the abdomen, which extended fully four inches to the right of the median line and about one inch below the umbilicus. The lady was in a very precarious condition when I saw her, and died only a few days thereafter. This was on August 6, 1895, and she died on August 9, three days afterwards. The tumor was made out to be an enlarged spleen, and the autopsy corroborated the diagnosis. An examination of the blood in this case gave the following results : Total number of blood-cells, 3,425,500 to the cubic millimetre ; proportion of red to white showed in a number of fields counted by the blood-counting apparatus, three hundred and eighteen red to eighty-eight white, being relationship of about one to four ; hæmoglobin, thirty-five per cent.

This case is similar to the first one presented, a typical picture of which is shown in some of our text-books and described as the mixed or spleno-myelogenic form. The condition found was very much like the first case presented, except that I did not find the white cells in such great numbers nor did I find as many polynuclear cells, but the case presented an unusual number of large mononuclear cells, the so-called "*mark cells*," and a very large number of eosinophilous cells. The blood in this case was almost a greenish-white color ; it looked almost like pus. Some of the older authorities used to think there was pus in the blood, its appearance was so near like it. The autopsy revealed a splenic tumor weighing five pounds. The photographs (Figs. 6 and 7) which I present were taken by Dr. Pelle, and show the anterior and posterior views of the tumor. The shape of the tumor is very well illustrated. No post-mortem examination was made of the

rest of the body. The bone-marrow was not examined. I did not find enlargement of the lymphatic glands anywhere. The only other point I desire to mention is that there was an accessory spleen, about the size of a small walnut, which was in close proximity to the capsule of the spleen.

CASE IV.—The next case is one that many physicians had seen before me. The patient was a young man of Irish descent, aged twenty-one years. He looked like a man in comparatively good health from the appearance of his skin, etc., and complained mainly of dizzy spells, ringing in the ears, etc., and I think he had fallen over once or twice. He had repeated hemorrhages from the nose and disturbances with the functions of the bowel manifested by diarrhoea. An examination revealed a very large splenic tumor, filling half of the abdomen, reaching pretty well down to the pelvis. An examination of the blood revealed a condition not differing much from Case I. The diagnosis was made also of leukæmia of the mixed type that we call *lieno-myelogenic*.

The diagnosis of this affection looks at first sight to be a very simple affair, and in well-marked cases, such as the ones now before us, it is comparatively simple; a drop of blood put under the microscope, stained or unstained, would possibly furnish evidence sufficient for the diagnosis. But there are some cases where it is not such an easy thing to accomplish and requires a great deal of care, and requires, above all, that we examine the blood in the dry state and in the stained condition. As we learn more we usually know less, and this is such an instance. It was thought at one time that an increase of the white blood-cells beyond a certain number constituted leukæmia; that if this increase of white blood-cells reached a ratio of one to fifty or one to thirty we would know that the condition was one of leukæmia, but we have now learned that there are several conditions where the white blood-cells in general may be increased to a great degree, various conditions of leucocytosis, and still we are not justified in calling the disease leukæmia on account of the numerical increase alone. I say this is true of various conditions, inflammatory diseases, above all, affecting the serous membranes and lung tissue, such as croupous pneumonia, peritonitis, pleurisy, simple meningitis (not tubercular), etc. Again, we may have a marked increase of the white blood-cells in persons suffering from a malignant growth, such as sarcoma and, more frequently, carcinoma of any of the organs, not to speak of the physiological increase in the various conditions of digestion, muscular exercise, etc. But in these cases we usually have a different variety of the

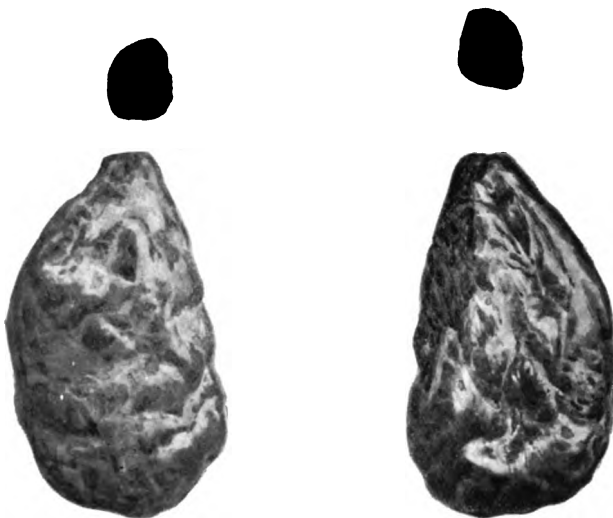
cells present that will aid us in the diagnosis. In those conditions of leucocytosis we usually have present simply an increase of the white blood-cells as normally existing in the blood, while in true leukæmia we have not only a marked increase in number, but a deviation of types occurring in normal blood or even the presence of forms not ordinarily found in healthy blood.

The forms of leukæmia which are called splenic and myelogenic are those cases where we have a mixed character of the cells, the principal characteristic of this blood being the constant presence, and the presence in a large amount, especially of large mononuclear cells variously named myelocytes or the mark-cells of Müller, or by Cornil and Robin and some others the medullary cells, in combination with the other cells found normally in the blood. In addition to that we have a varying amount of eosinophilous cells which were at one time thought to be (by Ehrlich) characteristic of leukæmia. In those cases of the disease in which the lymphatic nodes alone or the lymph-nodes and the spleen are found to be the main organs involved, as in Case II. of our series, we find principally an increased amount of small and large lymphocytes.

As to the other changes in the tissues, we have frequently, of course, changes due to degeneration and insufficient oxidation of the tissues, various degenerations of the internal organs, and a crowding of the organs with white blood-cells.

The history of the disease does not date back further than 1845. Bennet, in connection with Virchow, described a case of this kind. Virchow was the first one to demonstrate by post-mortem the actual lesions. Then Mosler and Neumann, following the line mapped out by Virchow, demonstrated the different forms of the disease, one form referable to the spleen, another to the bone-marrow as the principal seat of the lesion, and another referable to the lymphatic apparatus in general.

As to the causation of the disease, nothing definite is known to-day. Authorities quote as causes heredity, an impaired condition of the nutrition, syphilis, infectious diseases, tuberculosis, etc., but we can say that, in spite of not knowing anything about the cause, the changes which take place are probably primarily in the lymphatic apparatus, and, secondarily, in the blood. This, however, has been questioned by some authors, who state that the disease is one primarily beginning in the blood. We frequently have secondary enlargements of the lymphoid tissue, and it is questionable whether this is secondary to the increase in number of the white blood-cells or whether it is the primary lesion.



FIGS. 3 and 4.—Enlarged spleen from Case II. The normal spleen is represented above for comparison.



FIG. 5.—Enlarged spleen from Case II., divided.



FIG. 6.—Anterior view of the spleen of Case III.



FIG. 7.—Posterior view of the same.

Some authorities have described among the changes in the blood certain crystals known as Charcot's crystals, but possibly these are found only when the blood has undergone putrefactive changes. I have not found them in any of my cases. The duration of leukæmia may be from a few months to many years. Some cases, and two of mine come under this heading, correspond to that form that has been called by Ebstein acute leukæmia, but we may say there is very little use in making this differentiation, as we know so little about the etiology of the disease.

The frequency of occurrence of the disease is possibly of interest. Von Limbeck states in his book (*"Grundriss einer Pathologie des Blutes"*) that in the list which he has received upon inquiries from hospitals in different parts of Europe a great difference is shown in different cities,—amongst ten thousand sick persons a ratio of .14, according to one source; according to another, we find in ten thousand persons 9.89 cases of this disease.

The great point of interest to observers of this disease and pathologists to-day is still a mystery,—that is, the source and the cause of the increased number of cells, and this question will long remain unsettled. Nor has the question been decided as to whether it is primarily a blood disease or whether a disease primarily of the lymphatic apparatus, as I have already stated. Authorities differ as to the source of the white blood-cells, just as the source of the blood-cells in general in the normal state has not been positively settled.

I am not going to take time to speak of the treatment. We have no therapeutic measures that promise very much, in any event. I now invite you to examine several slides of stained specimens of the blood from the cases which I have reported, showing the marked changes which I have endeavored to describe. The methods of staining employed in these specimens have been (*a*) by Ehrlich's hæmatoxylin eosin and (*b*) by Chenzinsky's solution of methylen blue and eosin.

Neurology.

SOME CONDITIONS WHICH SIMULATE GENERAL PARALYSIS OF THE INSANE.

LECTURE DELIVERED TO POST-GRADUATES AT CHARING CROSS HOSPITAL.

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GENTLEMEN,—I wish to draw your attention this afternoon to some cases of great importance in respect to diagnosis, prognosis, and treatment,—cases which are not infrequently and erroneously regarded as general paralysis of the insane, a disease of which the prognosis and treatment are alike hopeless.

I may here remind you that general paralysis usually occurs in men at the prime of life, between the ages of thirty and forty, the average age being thirty-seven. It is now on the increase and is especially prevalent in large towns and cities. People suffering from this affection are also very liable to alcoholism, or, in the early stage of exaltation or depression, they often have recourse to alcohol to stimulate an exhausted nervous system; and we often have to decide whether a case is one of alcoholism pure and simple or of alcoholism and general paralysis. This is not always possible, at any rate for the first week or two, and until we are sure that the patient is getting no more alcohol. Certain symptoms, however, point to one and not to the other. Whereas *visual hallucinations* are extremely common in *delirium a potu*, they are rare in general paralysis *per se*, yet when the two conditions are combined, you may have the characteristic black devils, black beetles, or spiders, etc., seen by the patient while under the influence of the toxic action of alcohol. I saw a striking case of this recently; a patient, aged thirty-eight, had such hallucinations, but he also had other symptoms, which showed the existence of syphilis and general paresis, which led me to believe that there was a combination of alcoholic intoxication with organic degeneration. He had irregular, unequal pupils, and one of them was inactive to light. His speech was characteristic of a general paralytic; there was tremor of the facial

muscles and a loss of expression, and the knee-jerks were exaggerated. There was also a jerky condition of the tongue on protrusion. In a few days, as the effects of the alcohol wore off, all the visual hallucinations of black devils, etc., gave place to sweet angels, who came and moistened his lips with pleasant things, and a week or two later he was living in a palace surrounded with precious jewels and gold. Thus the diagnosis was confirmed.

A very important and characteristic symptom of general paralysis is the pseudo-apoplectic seizure,—unconsciousness, convulsions, and twitchings, and often rise of temperature, but after a few hours or days the patient recovers. Such a seizure is strong presumptive, but not absolute, evidence of general paralysis. I recently saw a man, aged forty-two, the subject of syphilis, with a marked history of alcoholism, who was seized with epileptiform convulsions and unconsciousness. He had a temperature of 103° F., and these facts pointed strongly to general paralysis. The pupils were equal and reacted very sluggishly to light. It was impossible to make a diagnosis, for we know that epileptiform convulsions may occur in people with such a history. The next day the man had recovered consciousness, and in a few days the effects of the alcohol had worn off, and he was quite sane.

The two conditions, then, which most commonly simulate general paralysis are alcoholism and syphilitic disease of the membranes and vessels of the brain. The latter is a disease which Fournier terms pseudo-general paralysis, and of which I have had the opportunity of seeing several cases quite recently,—cases which were diagnosed by competent authorities as general paralysis, but which, as shown by the autopsy, were pseudo-general paralysis; the symptoms depending upon a general endarteritis and periarteritis of the vessels given off by the middle cerebral artery in the Sylvian fissure. The disease affected all the vessels of the base of the brain, both large and small; not enough to produce complete occlusion of the large vessels, only of the smallest branches,—the periarteritis being very extensive. The symptoms produced by such a disease would, then, not be of that coarse and localized nature which in a previous lecture we have seen to be so characteristic of syphilitic vascular occlusion.

A transitory aphasia, which afterwards installs itself permanently with nocturnal headache, rigidity, and contracture, with voluntary paralysis, rather than paresis, especially if combined with an ocular paralysis, a *general coarseness* of the speech affection and of the paralysis instead of the fine ataxic condition of speech, would point to the pseudo form of the disease rather than to true general paralysis, which

is a primary progressive degeneration of the neurons of association, the vessels about the base of the brain being seldom affected.

It is of very great importance to recognize early this condition of pseudo-general paralysis, because it is amenable to treatment by anti-syphilitic remedies, whereas the general consensus of opinion is that true general paralysis is usually aggravated by such treatment.

There is a man in the wards whom doubtless you have seen, under Dr. Bruce, about whom I was consulted. He had been a soldier and served in Egypt, where he was said to have had sunstroke. I do not think any one would mistake his condition for general paralysis, although he seems to have had some delusions about getting the V. C. He denied syphilis altogether; but I was convinced from the symptoms, which I will relate, that this was the cause of his trouble rather than the sunstroke, which might, however, have been the exciting cause. On pointing out to him the necessity of telling the truth about this matter, I ascertained that he had had a *chancre* eighteen months previous to his illness. When I saw him, he was suffering with very severe headache, squint, and diplopia, thickness and indistinctness of utterance, paralysis and wasting of all the four extremities, exaggeration of the deep and superficial reflexes and hyperæsthesia. Mercurial inunctions and large doses of iodide of potassium have greatly improved his condition; the sickness has left him, the hyperæsthesia has disappeared, the headache also, and he can now sit up and, even one month after treatment, get about the ward a little with help. I believe the case to be one of general syphilitic meningitis with periarteritis. I should have mentioned that the fundus oculi showed no marked changes.

I will now show you a case which was sent to me by a practitioner as one of general paralysis, and at first I was inclined to agree with that diagnosis, although there were several important points against it.

CASE I.—T. Q., aged thirty-two, a cab-driver, of drunken habits and with a history of syphilis ten years previously, came to Charing Cross Hospital in December last. He attributed his illness to a fall, but he did not strike his head when he fell. Nine months previously his speech had been affected, just after the fall; his memory had not been so good, even now it takes him a long time to think, and he forgets the names of the streets.

His condition in December was briefly as follows: a loss of expression in his face, as if the natural lines had been effaced; slight ptosis of the left eye; pupils, however, equal and react to light and accommodation; the tongue tremulous, and the odor of the breath vinous;

he has difficulty in speech, especially in the explosive lip sounds; he cannot utter such words as "preliminary, hippopotamus, Mississippi, or biblical subject;" he has no pain across the forehead or headache; he wrote his name in a very tremulous manner, and walks with difficulty, and the knee-jerks are exaggerated. He is depressed rather than exalted. Both my student and myself believed it to be a case of general paralysis; but the history of syphilis, of alcohol, the ptosis, and the absence of any definite mental condition, and the fact that the pupils were equal and reacted to light made me express to the friends the desirability of waiting a little before giving them a positive opinion. I enjoined on them the necessity of total abstinence from alcohol and I gave him antisyphilitic treatment. On the 21st of January he had a seizure and lost speech for two hours (transitory aphasia); the attack was also accompanied by loss of power in the right hand; he was conscious the whole time. Since that he has steadily improved, both in speech, memory, and muscular power, and I am hopeful of the case turning out to be one of pseudo-general paralysis. As you see, the *absence of pupillary symptoms* was of very great importance in the prognosis of this case.

CASE II.—I will now show you a case of interest. E. A. G., aged thirty-eight; occupation, stationer; married twelve years; two children. You notice as he walks into the room that he has a characteristic *ataxic gait*. He had good health until April, 1894, when his mind became unhinged, owing to worry and overwork. He took to drink, was unable to sleep, and had *grandiose delusions*, believing that he was possessed of sufficient wealth to buy up several stationers' businesses. He was sent to an asylum, and remained there a year. His mental condition improved so much that he was discharged; since then he has been under my care. He never had any seizures, and I can find nothing mentally wrong with him now. There is no facial paresis and the tongue is not tremulous, neither is the speech affected. His *pupils are unequal* and they react neither to light nor accommodation, but we know that the latter condition may result from syphilis, and he says that one pupil has always been larger than the other. He cannot stand with his eyes shut, but he has had no lightning pains. There is complete absence of the knee-jerks, but no girdle sensation, nor any trouble with his bladder or rectum. Of the degeneration of the afferent spinal projection system of "neurons" there can be no doubt, but do we account for the history of mental symptoms by the toxic action of alcohol or by degeneration of the higher neurons of association,—that is to say, are we dealing with a case of general paralysis of the ataxic

type? The progress of the case is strongly in favor of the former, although it is possible that we have in this case an example of arrested general paralysis. The subsequent development of the case will show what the disease really is, although I personally strongly incline to locomotor ataxy and alcoholism for a diagnosis. Syphilis in this case is also very probable from the history.

CASE III.—A. H., aged forty-two, is an example of syphilitic disease of the brain affecting numerous vessels. He had a seizure with convulsions and unconsciousness last Christmas. The convulsions were bilateral. When he recovered consciousness his speech was gone, but it gradually came back. At the time of the seizure one might have considered the possibility of it being general paralysis. It is now, however, clearly not this disease, for although there is an effacement of the lines of expression and a loss of memory, yet his improvement under antisiphilitic treatment, the absence of mental symptoms, the slowness of speech rather than ataxy, the absence of tremor in the tongue and face muscles, and the equal pupils reacting to light and accommodation, all point to its not having been a seizure of general paralysis.

CASE IV.—J. R., aged thirty-four. Sent to me as a case of probable general paralysis in February last, when the following notes were taken: His illness commenced six or eight months ago, when he had the tip of his finger cut off. His wife noticed that he had become childish in his manner and incapable of taking care of himself. Last September I learned that he had double vision and drooping of the left eyelid, and now there is some weakness of the left superior rectus, for, on looking upward, he sees double. The knee-jerks are absent, but there are no lightning pains. He had syphilis when a young man. The pupils are unequal and do not react to light, but they do to accommodation. He is a little unsteady in standing with the eyes closed and the heels together. The tongue when protruded is somewhat tremulous, but not in jerks. He stammers so very much that one is unable to test his speech. There is no history of alcoholism, no grandiose delusions, and no seizures. He is depressed and sits and mopes all day long. He was placed upon antisiphilitic remedies, and he has certainly improved, the ptosis and double vision have disappeared, and his writing, which was at first shaky, has improved. I consider that this is probably an example of syphilitic vascular disease of the brain with softening.

The idea is now very prevalent upon the continent that syphilis is the great cause of general paralysis, as it is of locomotor ataxia. The

two diseases are very similar, only the poison has affected the durability of the "neurons" of the higher centres of the brain in the former, whereas in the latter it is the degeneration of the posterior spinal "neurons." Fournier terms it a parasymphilitic affection,—that is, it is the outcome of the effects of the toxine rather than a specific lesion, just as epilepsy may result from syphilis, of which I have here an example. A man who contracted syphilis at the age of thirteen, who has no trace of hereditary neuropathy, twenty years after contracting the specific affection, became the subject of true epileptic fits.

Some authorities say that eighty per cent. of the cases of general paralysis are of syphilitic origin. Dr. Savage, who has had large experience of insanity in the well-to-do and those from whom a reliable history can be obtained, is most emphatic upon the specific origin of this disease of the brain.

It is of great importance, therefore, to distinguish those cases of syphilitic pseudo-general paralysis which show mental symptoms and paresis from general paralysis. The former are, as a rule, greatly benefited, and, indeed, sometimes cured, by antisymphilitic treatment; the latter are seldom benefited, and, indeed, in many instances more harm than good is done by iodide and mercury. I generally give thirty grains of the iodide combined with ten grains of bromide of potassium three times a day, often accompanied by mercurial inunction. Relief of the pain in the head may sometimes be obtained by direct inunction of the part. If you do not get results the iodide may be increased.

Dr. Allen Starr has given as much as five hundred grains a day. Small doses are of no use whatever and frequently produce iodism, whereas larger doses do not. In fact, for nervous diseases, potassium iodide in large doses is our main-stay of treatment, for, if the case be one of tumor of the brain, operation is only possible in a few cases, and it should not in most cases be attempted until iodide has first been tried.

In conclusion, I may mention that lead-poisoning sometimes produces a dementia in some respects like general paralysis, as does likewise a disease not uncommon in Italy, arising from bad maize, known as pellagra.

To sum up: The points in favor of syphilitic dementia are headache, especially if nocturnal; delusions of a weak-minded, incoherent sort (such as J. R. exhibited), seldom of grandeur and ambition (although E. G. exhibited them to a slight degree); the existence of definite local paralysis, especially ptosis and strabismus, which we have seen three out of four of these cases showed, and which are rarely seen

in general paralysis ; in fact, any coarse localized paralysis rather than an ataxic feebleness ; transitory aphasia, followed by complete loss of speech, rather than the halting and syllabic embarrassment, accompanied by tremor of the muscles about the mouth before and during utterance, so characteristic of general paralysis. Most of the doubtful cases want watching before pronouncing a definite opinion, and, as I have shown you, some apparently "hopeless" cases do get better under treatment, although the mental degradation must always persist to some degree, and it is not uncommon for these cases to terminate in hopeless dementia.

I hope at some future time to continue this subject by giving you a lecture upon the symptoms and pathology of general paralysis, which I have been especially investigating for some time past.

THE CAUSES OF HYSTERIA.

PART OF A CLINICAL LECTURE DELIVERED AT THE PHILADELPHIA HOSPITAL.

BY CHARLES W. BURR, M.D.,

Clinical Professor of Nervous Diseases at the Medico-Chirurgical College; Professor of Diseases of the Mind and Nervous System at the Philadelphia Polyclinic; Neurologist to the Philadelphia Hospital, etc.

GENTLEMEN,—We will study to-day a case of hysteria, paying especial attention to causation. The history obtained by Dr. W. J. White, the resident, is as follows: The patient is a woman, twenty years old, and recently married. She has been a clerk for some time. She has suffered far more than the usual worry and grief and trouble of women of her class. Menstruation began in the fourteenth year. The periods have always been painful and the flow profuse. She has had one child, now eight months old. The labor was easy, and the puerperium seemed normal until the fourth week, when she began to suffer with a milk-leg. At the same time menstruation returned, and has since been regular. She dates her present trouble from the milk-leg, but it is probable that grief became unbearable with the knowledge of conception. She has been to nearly every hospital in the city, complaining of what she calls indigestion. What her symptoms really were, and how she in truth suffered before she came here, we have been unable to elicit with any clearness. She was admitted to the ward for diseases of women several months ago, complaining of pain and tenderness on pressure in the lower part of the abdomen on the right side, in the so-called ovarian region and along the course of the right sciatic nerve. Vaginal examination under ether showed the pelvic organs to be normal. Though she ate and slept well, and, indeed, showed no evidence of serious disease, yet she insisted on staying in bed, and when pressed for a reason gave only vague and unsatisfactory answers. There being certainly no pelvic trouble, she was transferred to the wards for nervous diseases on January 22. She was then in a curious mental state, fretful and hilarious, taciturn and loquacious

by turns. She would refuse to eat for several days, giving as a reason that her stomach hurt her, or that she was not hungry, and then would gorge for a day or two. Still there were no objective signs of disease. She remained in about the same condition until March 13, when the following symptoms appeared. She was found by the nurse sitting in a chair, and making violent irregular, choreiform, and apparently purposive movements of the entire body, arms, legs, trunk, and head. Her voice became whispering, and three days later she ceased to speak, though she appeared to try violently. Speech did not leave suddenly, but gradually the voice became weaker and weaker. She was put to bed, and so violent were the movements that for a time she had to be fastened in with a sheet, lest she should throw herself to the floor. Soon the character of the movements changed, the violent jerkings giving place to nearly rhythmical movements, recurring about every ten seconds, lifting the body from the bed, drawing up the legs, crossing and uncrossing the arms upon the chest, grimacing, and protruding and withdrawing the tongue. At the same time her eyes were fixed and turned upward. Her respirations were rapid, regular, and snoring. The pulse was normal. There was complete anæsthesia in the right leg, sensation in the rest of the body being normal. The knee-jerks were large, but not spastic. There was no ankle clonus. She had retention of urine, and only small amounts were secreted, on some days less than eight ounces being withdrawn by catheter. She had no opportunity to micturate secretly. She refused food, and was fed by enemata. Though she would or could do nothing on command, and though she was speechless, yet she appeared to be attentive to all that was going on around her, and at no time seemed unconscious. Indeed, she never was unconscious. She gave no sign of feeling when pricked upon the right side, but when touched on the left drew arm or leg quickly away. The movements slowly got better, and there remained speechlessness, hemianæsthesia, and refusal to take food. Some days ago, after we had spoken in her presence of having her transferred to the insane department, she began to speak, at first and for several days in a whisper, later in her natural voice. Soon after she attempted suicide by passing a long stocking around her neck, pulling the ends tight, and at the same time screaming. If this was done for dramatic effect it came near having a tragic ending, for when caught by the nurse a few moments later she was struggling for breath and cyanosed. She became greatly excited and as if beside herself with rage. This, the only attack of violence she has had, passed off in a few hours. Shortly after she asked for a book on her disease, that

she might read up such an interesting and peculiar case. She did not get the book. She has slowly improved till now.

Examination.—As you see, she is a ruddy, well-nourished young woman. She walks and stands and uses the hands well. There is no palsy or ataxia. The special senses are normal, except that, as Dr. Oliver tells me, the fields of vision are greatly contracted, without reversal of colors. The eye-grounds are normal. The pupils are dilated, equal, and react well to light and with accommodation. There is complete anæsthesia to pain and temperature upon the right side from crown to toe, and stopping abruptly at the middle line. She says she is anæsthetic to touch also, and probably is, but we cannot be sure. We are at the mercy of her truthfulness, since touch gives no objective sign proving it is felt. There are occasional slight choreiform movements of the face and extremities. The knee-jerks are slightly increased, and there is an attempt at ankle clonus; not the persistent and regularly recurrent movement of organic disease, but two or three irregular jerks. Speech is normal. Her mental condition seems good. She is bright, cheerful, and glad to assist in the work of the ward.

The diagnosis is easily made and certain. She presents distinct stigmata of hysteria, hemianæsthesia, contraction of the fields of vision, ovarian pain, and, on the other hand, there are no symptoms of organic nervous disease which so often make it difficult to determine whether a case is purely hysterical or has a basis of organic disease on which has been built an hysterical superstructure. This question of the diagnosis of hysteria is of great interest, but to-day I wish to study with you the causes of the disease. The time has passed when hysteria could be regarded as the mere foolish capers of a silly girl, or as the result of some mysterious usually non-existent disease of the womb or ovaries. It is a disease as fixed in its natural history as phthisis, as unknown in its morbid anatomy as paralysis agitans. Even its seat, the organ diseased, was for a long time matter for dispute, and only recently has any agreement been reached that it is an affection of the brain, a disease primarily of the mental centres, but often presenting symptoms due to involvement of the lower centres, as, for example, the vasomotor and respiratory. It is a psychosis, one of the group of diseases which includes insanity at one end of the line and epilepsy at the other. What the real immediate cause of the symptoms is, what acts upon the brain and how and what the anatomic effect, what changes, if any, occur in the brain-cells and their processes, we do not know. The external causes we know something

of, and we will study them alone. The great predisposing cause is heredity. Not every one can get hysteria. The inheritance may be direct, an hysterical parent having an hysterical child, or indirect through epilepsy, insanity, inebriety, and indeed almost all the diseases of degeneracy. An hysteric rarely has a healthy ancestry. The disease begins most often with conception. There is most often an inherent structural brain-weakness. Next in importance to heredity, and often co-operating with it, is vicious education. An hysterical mother is her child's worst enemy. Emotional, selfishly affectionate, lacking self-control, she trains the child to be her counterpart. Sex and age exert an influence. Hysteria is far more frequent in women than in men, but it occurs in either sex and at any age, unless earliest infancy is exempt. The exciting causes are numberless, and at first sight seem very unlike. Emotion, especially if sudden in onset and depressing, trauma, acute and chronic diseases, poisons, as alcohol, mercury, and lead, may all precipitate an attack. These things seem to have little in common, to be very unlike, but in all there is one element. By all mental shock is caused. In trauma, for instance, it is not the physical injury, not the fractured skull or leg, which causes the hysteria, but the profound emotional disturbance. This is shown by the fact that there is no direct proportion between the extent of the physical injury and the severity of the hysteria; and, indeed, great injury with little shock is less dangerous than less injury with great emotional shock. It is the fright, the terror that makes railroad accidents such a fruitful source of hysteria. Much doubt has been cast on the causative influence of trauma, because of the large number of cases which come before the courts claiming damages, there being a well-known type of conscience that considers getting money from corporations as highly praiseworthy. Some of these damage cases are fraudulent, a certain number real, but not due to the causes alleged; the remainder are distinctly the results of the accidents suffered. It has been the fashion of late to call hysteria caused by trauma the traumatic neurosis. This multiplication of terms serves no good purpose. The condition is hysteria, and nothing else.

In the cases following syphilis the hysteria is but little, if at all, due to the specific action of the virus upon the nervous system, but rather to the mental effect produced in the patient by knowing she has such a loathsome disease. Hysteria seems to be no more frequent in syphilitics who do not know they are infected than it is in persons free from such taint. With alcohol it is not quite the same. The true inebriate, the man condemned from birth to drug abuse, is always a

neurotic, often potentially hysteric, and in him alcohol may have a distinct hysterogenetic action added to the shame and grief caused by knowing that he is a victim to uncontrollable desire. An hysterical outbreak may occur during the course of almost any disease, revealing itself by either local or general symptoms. For example, a laryngitis too slight to cause speech difficulty of itself may be the immediate exciting cause of hysterical aphonia, a trifling injury to a joint may be followed by the mimicry of organic disease, or the muscular weakness following typhoid fever may be the starting-point of an hysterical paraplegia. In all these cases of hysteria complicating other diseases great care is needed in making the diagnosis. Do not jump to the conclusion that because a symptom may be hysterical it must be so. Remember that organic nervous diseases complicate and may be caused by disease of other organs, and never diagnose hysteria till all other possibilities are excluded.

Volumes have been written about the relation between hysteria and disease of the female genitalia. No other organ has suffered so much undeserved blame and been so abused. For centuries affections of the sexual organs, many of them hypothetical, were the supposed only cause of hysteria. This belief, an inheritance from antiquity, was based upon a fanciful pathology, and the fact that there are often aberrant sexual emotions. In truth, however, these emotions have seat in the brain, not in the womb, and operations upon the genitalia for the cure of hysteria, unless there is distinct local disease itself requiring treatment, is as unwarranted, as absurd, as it would be to cut off a leg, the seat of convulsion, to cure epilepsy. When there is disease of the genitalia it should, of course, be treated, though not infrequently the rectification of uterine or ovarian disease has but little effect upon the hysteria.

A CASE OF TABETIC ARTHRITIS.

CLINICAL LECTURE DELIVERED IN THE QUEEN'S HOSPITAL, BIRMINGHAM.

BY ALFRED H. CARTER, M.D. (Lond.), F.R.C.P.,

Senior Physician to the Hospital, and Professor of Therapeutics, Mason College, Birmingham.

GENTLEMEN,—I propose to-day to direct your attention to an unusually interesting case of osteo-arthritis of the hip-joint occurring in association with *tabes dorsalis* or locomotor ataxy. The patient, as you will hear, finally succumbed to a further complication in the shape of cancerous disease of certain abdominal viscera.

E. D., aged fifty-eight, by occupation a tradesman. He has had four children, all rather delicate. Family history good. No personal history of rheumatism or phthisis. Wild in early life, but never had syphilis. Is an only child. Always temperate. Quite well until eleven years ago, when he suffered from a perforating ulcer under the left great toe, which continued to discharge for seven years. As there was no tendency to heal, the toe was finally amputated. Has never had good health since, chiefly suffering from shooting pains in various muscles and joints.

Admitted into the hospital on October 15, 1892, with the following history: Abrupt onset of swelling of the right hip eight weeks ago, extending down nearly as far as the knee. In the course of the next few days the area of swelling somewhat diminished, receding towards the hip, which remained as much swollen as before. Progressive lameness. No marked pain in the joint itself, but occasional shooting pains down both legs. Also some girdle-pain, which has been worse during the last six weeks.

The following notes were made upon admission: Patient pale, fairly nourished, normal temperature. Very lame and awkward in walking, but without obvious incoördination. Unsteady when standing with his eyes closed and feet together. Much swelling of the right hip, chiefly to the outside and front (Figs. 1 and 2). The swelling is

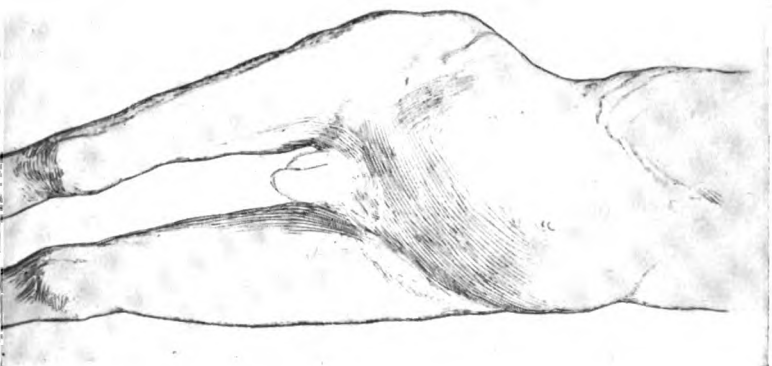


FIG. 1.—Tabetic arthritis of hip.—Front.

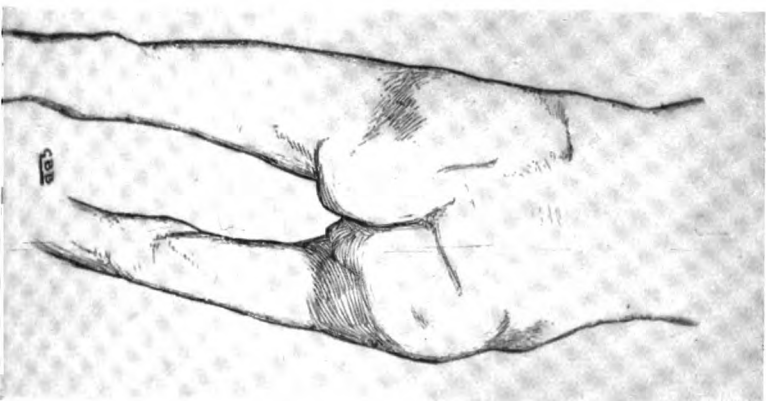


FIG. 2.—Tabetic arthritis of hip.—Back.

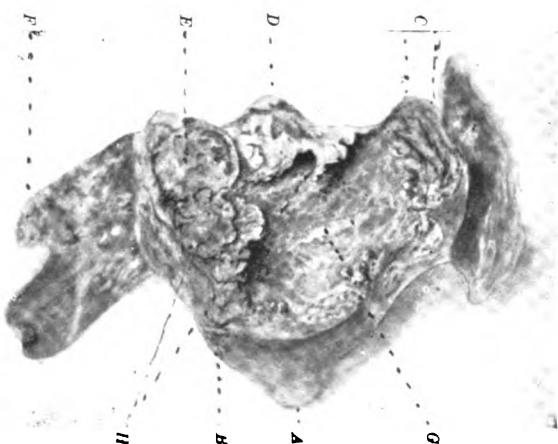


FIG. 3.—OUTER SIDE OF LUMBAR.—A, anterior superior spine; B, anterior inferior spine; C, posterior inferior spine; D, ischial spine; E, head of femur; F, exostosis of trochanter; G, shallow excavated surface receiving head of femur, in false hip-joint; H, fibro-cartilaginous ring.

brawny, does not pit on pressure, and is only very slightly tender. It extends down the thigh as far as the junction of the lower and middle thirds. The joint is freely movable in *all* directions. Such passive movements are quite painless, and are attended with loud, grating sounds. Similar grating is heard on passive movement of the right knee, which exhibits no swelling or deformity. Muscular sense of both legs is impaired, but that of the arms is unaffected. The right leg is a little shortened. The knee-jerks on both sides are abolished. Plantar, cremasteric, and abdominal reflexes are normal. Sensation appears to be unaffected. Pupils equal, contracted, and insensitive to light, but respond to accommodation. No optic neuritis or optic atrophy. Circulatory and respiratory systems normal. Alimentary system normal. Liver and spleen of usual size.

No material alteration taking place in his condition, he was discharged on November 23, 1892.

Readmitted on October 17, 1895, with the following history: Beyond increasing unsteadiness and lameness, he altered little since his previous discharge until some six or seven weeks ago, when he began to complain of flatulence and bilious eructations, with vague pains in the stomach, especially after meals. Soon afterwards jaundice set in abruptly, becoming intense in the course of a few days, and remaining ever since. Irregular attacks of diarrhoea every three or four days. Stools always of a light drab or slaty color. Urine dark-colored and becomes thick on standing. Sleeps badly at night, but is very drowsy during the day. Losing flesh rapidly during the last two months.

On Admission.—Emaciated and deeply jaundiced (dusky brownish yellow); troublesome pruritus; temperature normal; tongue large, flabby, and coated. Appetite good, and no pain after meals. Bowels regular for the most part, with bulky stools, not specially offensive. (Occasional diarrhoea, without obvious cause, was afterwards observed, with liquid and very offensive stools.) Abdomen distended; liver greatly enlarged, extending below the umbilicus on the right side; hard and slightly tender on palpation. Nothing abnormal could be detected on digital examination of the rectum.

Notable painless enlargement of the right hip, with apparent outward displacement. Free passive movement of the joint in *all* directions, without pain, but with audible crackling and grating sounds. Considerable thickening about the head of the right femur, especially in the neighborhood of the trochanter. A prominent bony projection can be felt on the superior ramus of the pubes, just internal to the femoral vessels. Right leg two inches shorter than the left, and the

muscles of the former are much atrophied. Knee-jerks quite absent. Plantar reflex absent. Pupils contracted, and reacting as before. Fundus oculi normal. Cannot stand with eyes closed, but this is partly due to an inability to bear much weight upon the right leg. Co-ordination of upper limbs remains intact (Figs. 1 and 2).

In the course of the next few weeks the abdominal symptoms gradually increased,—vomiting, tympanites, abdominal pain and tenderness, chronic intestinal obstruction, and ascites,—and, finally becoming much emaciated and exhausted, he died on December 20, 1895. The condition of the hip-joint underwent no further alteration.

The post-mortem examination revealed general purulent peritonitis, with wide-spread adhesion of adjacent coils of intestine to each other, enclosing here and there pockets of fetid, faecal-stained pus. There was a perforation of the transverse colon communicating with a large abscess extending into the liver on the right, thence communicating with the gall-bladder, and containing about twenty small gall-stones. The gall-bladder itself was shrunken and contained no gall-stones. In the upper part of the rectum—at its junction with the sigmoid flexure—there was a hard annular stricture, barely admitting the passage of an ordinary catheter. There was no ulceration of the bowel. (Subsequent microscopic examination showed that the stricture was caused by a growth of hard, scirrhus cancer.) The liver was enormously enlarged, and contained a secondary cancerous nodule. The kidneys were of normal size, but showed evidences of slight fibroid change.

The *right hip-joint* was excised with the adjacent parts of the pelvis and femur, and was subsequently examined (Fig. 3). The femur was very loosely attached to the pelvis, permitting easy dislocation in all directions from its proper position. The acetabulum, as a cavity, had disappeared, apparently from atrophy of its margins, and was only represented by a shallow, rough surface, about three and a half by four inches in area, occupying the outer surface of the ilium. The margin of this area was bounded by a series of bony excrescences in association with fibro-cartilaginous fringes, especially abundant in the acetabular region. The iliac surface of the joint was denuded of cartilage. The head of the femur was flattened, irregular in outline, atrophied, quite denuded of cartilage, and presented a worm-eaten appearance at its margin. The round ligament had disappeared. The neck of the femur was much shortened, and was surrounded by fibrous fringes, forming at certain points a sort of dense, false capsular ligament, attaching the femur to the pelvis. The great trochanter was enlarged and irregular in shape, and in front of it, extending down the shaft of the

femur, was a prominent exostosis, some three and a half inches in length. It seems not unlikely that this formation occurred in connection with a previous spontaneous fracture of the neck of the femur.

Spinal Cord.—The professor of pathology (Dr. Kauffmann) has furnished me with the following report: "There is wide-spread degeneration of the entire posterior root-zones of the lumbar enlargement of the cord, and also of the columns of Goll and of Burdach, but chiefly in the anterior parts of each,—namely, those which are nearest to the central commissure. No part, however, of the posterior part of the cord seems entirely to have escaped change. The degeneration extends into the posterior gray cornua and issuing nerve-roots, and is more marked upon the right than upon the left side of the cord. There is quite an extraordinary number of corpora amylacea, most closely massed in the posterior part of the cord. The anterior cornua seem to be quite healthy, but there, too, the corpora amylacea are fairly numerous and look very like degenerated Deiters's cells. The central canal is filled with a delicate fibro-nuclear stroma, and the posterior fissure is practically obliterated. The axis-cylinders of the white fibres in the degenerated area are generally shrunken, and in many parts the sheaths of Schwann are also wasted."

The case which I have just related is a typical illustration of acute osteo-arthritis of the hip-joint, occurring in connection with locomotor ataxy or tabes dorsalis. Tabetic arthritis (as it is called) is by no means a common affection, occurring only in about four or five per cent. of all cases of tabes. Then, as regards the frequency with which the hip-joint is affected, in comparison with other joints, the former comes third on the list. The knee is affected most frequently, and the foot comes next. Lastly, an opportunity of post-mortem demonstration of this condition is very rarely afforded. For these reasons no excuse is needed for bringing the present case under your notice.

The grounds on which the diagnosis of tabes dorsalis was made in the first instance are as follows: To begin with, there was a history of shooting pains in various parts of the body. No doubt they resulted from some irritative lesions of the spinal cord, and this conclusion was strengthened by the fact that, eleven years previous to admission, the patient had suffered from well-marked perforating ulcer under the left big toe,—a lesion which is met with under similar irritative conditions and is especially common in tabes dorsalis. In addition, we also observed marked incoördination, together with impaired muscular sense of both legs, obliteration of the knee-jerks, and loss of pupillary response to light, while the response to the act of accommodation was

preserved. Such an aggregate of signs and symptoms establishes the diagnosis of tabes beyond all doubt, and its correctness was confirmed by a post-mortem microscopic examination of the spinal cord, which revealed characteristic degeneration of the posterior root-zones and of the adjacent posterior cornua. From the frequency with which a history of syphilis is found in conjunction with tabes, it is noteworthy that nothing of the kind could be traced here, after careful examination and inquiry.

As I shall probably have further opportunities in future of demonstrating cases of ordinary tabes dorsalis, I will confine my remarks on the present occasion to the special arthritic features of the case.

In the post-mortem record which I read to you, you could scarcely have failed to be impressed with the general resemblance of the anatomical changes which were noted in the right hip-joint to those of severe rheumatoid arthritis, as it occurs independently of spinal disease; and a good deal of controversy has taken place as to what connection, if any, there is between the two conditions. I cannot now enter upon this controversy, and shall limit myself to the expression of what appears to me to be the main truth of the matter. For my own part, I fail to see that there is anything in the ultimate anatomical changes of the affected joint which would enable any one to distinguish with certainty between arthritis of tabetic origin and arthritis of rheumatoid origin. In both you will find atrophic and destructive changes, existing side by side with hypertrophic formations of cartilaginous and bony outgrowths, although it is no doubt true in the main that atrophic and destructive changes usually predominate in the tabetic form, while hypertrophic changes usually predominate in the rheumatoid form.

Nevertheless, there are certain striking features which characterize the clinical history and development of tabetic arthritis, which enable one to differentiate it at the bedside from rheumatoid arthritis,—features which are admirably illustrated by the present case.

1. The abrupt onset and rapid development. Observe that our patient described his trouble as coming on all at once, and that in less than eight weeks from the date of onset his hip had become entirely disorganized.

2. As the outcome of this violent invasion, nearly the whole thigh became infiltrated with a brawny œdema, which did not pit upon pressure, which quickly attained a maximum, and, as it declined, became more and more restricted to the area of the affected joint.

3. Observe also that the disease was limited to the joint which was first attacked, and it is relatively unusual for more than one joint to

become affected. In the rheumatoid type, on the other hand, it is the rule to find several joints involved simultaneously, and cases in which one joint only is involved are relatively exceptional. This fact, however, only implies that the exciting cause is more generally diffused in the one than in the other, and not that there is any essential difference in kind or mode of operation.

4. The practical absence of pain—on which some authorities lay so much stress as a distinguishing feature of tabetic arthritis—is noteworthy; but it is probably related only to the intensity and rapidity of the destructive changes involving the sensory nerve-endings in the joint. This interpretation seems to be the true one, from the fact that in rheumatoid arthritis pain becomes less and less conspicuous as destructive changes in the joint-structures proceed. The disorganization, which in rheumatoid arthritis is spread over months or years, is included within the space of a few weeks in tabetic arthritis.

5. Another prominent feature which was observed in this case was the free mobility of the thigh upon the hip in *all* directions, and it is obviously related to the destruction of ligamentous bands and the relative absence of any hinderance to passive movements from new cartilaginous or bony formations around the joint. It should be borne in mind that tabetic arthritis does not always assume this quasi-malignant form. Sometimes, as Charcot has pointed out in his masterly articles on this subject, the joint recovers its integrity as the early swelling subsides, and in such cases you would not of course meet with many of the signs and symptoms to which I have referred.

I think that the clinical facts which I have laid before you, and which are so well illustrated by the case under to-day's consideration, show clearly that there are strong grounds for regarding tabetic arthritis as a special *variety* of osteo-arthritis; but I cannot follow those who regard it as a distinct and special disease. I would not positively deny that such is the case, but I do say that the evidence—so far as it has come before me—does not yet warrant such a conclusion. At the present time there is a tendency to carry the differentiation of disease so far as to blind us in some measure to the affinities which bind different varieties of disease together under some common general archetype. A time at which we know so little of the intimate pathology of rheumatoid arthritis seems to me to be peculiarly unfortunate for too hastily separating it, once and for all, from any relation with tabetic arthritis. By keeping them, on the contrary, closely associated in our minds for the present, it may well happen that a careful study of either will help to throw light upon the nature of the other. This mental

attitude seems all the more necessary when we reflect that the two affections which I have so repeatedly referred to in this lecture, do not by any means exhaust all the varieties of osteo-arthritis which are met with in practice. Notably, there is one which appears to be set up primarily by local injury to a joint, a good illustration of which I demonstrated to you some time ago, where osteo-arthritis had been set up by the violent manipulations of a so-called bone-setter. (See *Lancet*, August 29, 1896.)

The evidence, in fact, seems overwhelming that, in tabetic arthritis, at any rate, the local joint-lesion is a trophic disorder which results from degenerative changes in some part of the spinal cord; and, according to the views of some of the best authorities, it would appear that lesions in the gray substance of the cord are chiefly responsible for it. Assuming the conclusion to be established that tabetic arthritis is a trophic disorder of nervous origin, it is not improbable that other varieties of osteo-arthritis which are anatomically allied to it, notably rheumatoid arthritis and arthritis from local injury to a joint, may be brought about by central nervous disease. The latter may, indeed, be different in kind and in the circumstances of its origin and development in different varieties of osteo-arthritis, but there is strong presumptive evidence that in all varieties of this affection the proximate causation is always essentially the same. Our present knowledge does not enable us to affirm that this is positively the case, but it is a fair presumptive truth.

I do not propose to dwell upon the cancerous complication which cut short our patient's career. It is certainly an uncommon complication, and I do not remember to have met with an instance before; but for all practical purposes it may be regarded as a coincidence and not as having any special causal connection with the tabetic condition.

Although we were not able during life to identify the stricture of the colon, no doubt was entertained (after his second admission) that the patient was the subject of malignant disease, which, in turn, was in some way responsible for the signs of intestinal obstruction. Without entering further upon this aspect of our case, I may refer to two considerations which aided our diagnosis of malignant disease.

1. Jaundice dependent upon malignant disease, having once appeared, never disappears. Persistency of jaundice, therefore, in the second half of life, always creates a suspicion of cancer.

2. The association of jaundice and ascites is very rarely met with in the latter half of life apart from cancer.

HYSTERIA IN A MAN; TUMOR OF THE BRAIN; LOCOMOTOR ATAXIA AND DEMENTIA PARA- LYTICA.

CLINICAL LECTURE DELIVERED AT THE CHICAGO POLICLINIC.

BY HUGH T. PATRICK, M.D.,

Professor of Neurology in the Chicago Polyclinic; Instructor in Clinical Neurology,
Northwestern University Medical School; Consulting Neurologist to
the Illinois Eastern Hospital for the Insane, etc.

HYSTERIA IN A MAN.

GENTLEMEN,—I have several interesting cases to present to you to-day.

CASE I.—The first patient, brought from Iowa by Dr. Russell, is a young man, thirty-one years of age, a farm hand. The family history is absolutely negative, as is also the personal history up to the time of the present trouble, with the following exception: he had a hernia which was operated on four years ago. Since that time he has been impotent. This is an important point in the history, as such impotence could be only psychic. He has made an attempt at intercourse two or three times a year but has never been successful. In other respects he was in perfect health until two years ago, when, after a period of considerable mental worry, deprivation, and hardship, he was one afternoon attacked with hiccough. It apparently came on of itself. There was no appreciable cause that he can recall or that I can find any trace of to account for the attack. The hiccough lasted for two days without cessation, and during this time the spasm recurred about once a second. He was then for two days without it, when it again recurred and continued for a period of two days and nights, and this alternation thus continued until the following spring,—that is, the spring of 1895. Since that time, a period of a year and a half, the duration of the attacks as well as of the intermissions has been four days. He hiccoughs for four days incessantly, both day and night, and then he is for four days without a trace of singultus. Once, as a result of treatment, he had a rest of five days. At times the hiccough was ex-

ceedingly violent, while at others it was rather mild. In addition to this difficulty he has had some stomach trouble, with vomiting, and he has a paresis of the entire right side except the face. The right arm and the right leg are much weaker than the corresponding member of the opposite side. Furthermore, he says he does not feel touches and painful impressions as acutely on that side as on the left. This numbness includes the face, so that in shaving the right side he often cuts himself. That is the sum and substance of his suffering. He has consulted several physicians and has tried all kinds of home remedies and nostrums, without any appreciable relief, except from the indigestion and vomiting.

What do we find on examination? First, the motor condition. We find a weakness of the right side of the body which I just mentioned in giving his history and which is very easily demonstrated. The dynamometer in the right hand registers 20, in the left 120, the latter being a fairly good grasp. He stands on the left leg very well, but the moment he tries to stand on the right he experiences great difficulty. You observe unsteadiness as well as weakness. He hops very well on the left foot in going across the room, but in coming back and trying to hop on the right he is entirely unable to do so. He cannot jump at all with the right leg. The facial muscles act equally well on both sides. Mark that.

As to sensation, he feels firm touches on the right half of the face slightly, but not nearly so well as on the left. The same may be said of the arm and leg, the entire right half of the body up to the vertex and down to the sole of the foot being involved. This is equally true of the pain sense. You notice that he is conscious of the prick of a pin, but it makes no painful impression whatever on the affected side, whereas on the non-affected side it causes the ordinary amount of discomfort. Note that, in contrast to the motor disturbance, which lets the face go free, the anæsthesia and analgesia include the face and head with the rest of the body. But there is a notable variation in the degree of this right-sided sensory blunting. It is not equally marked over its entire distribution, for there are places on the neck, trunk, and leg where it is very intense. In this area over the back of the neck he is not conscious of pain when I force a pin through the skin. He does not even know that I am touching him. There is absolute anæsthesia and analgesia here as also in an irregular plaque on the right trunk. The anæsthesia of the lower extremity is, for the greater part, not so pronounced as upon the upper extremity. But there is an area on the right leg, extending from below the knee to above the ankle and limited

by a line drawn directly around the limb at right angles to the long axis, where sensation is decidedly less than above or below this "stocking-leg" region. (Figs. 1 and 2.) (Here Professor Patrick determined the limitations of the anæsthetic area and indicated them by blue lines upon the skin.) This patient has also loss of taste on the right half of the tongue. It is hardly necessary for me to demonstrate that to-day, as I have shown you before how it is done. The sense of

FIG. 1.

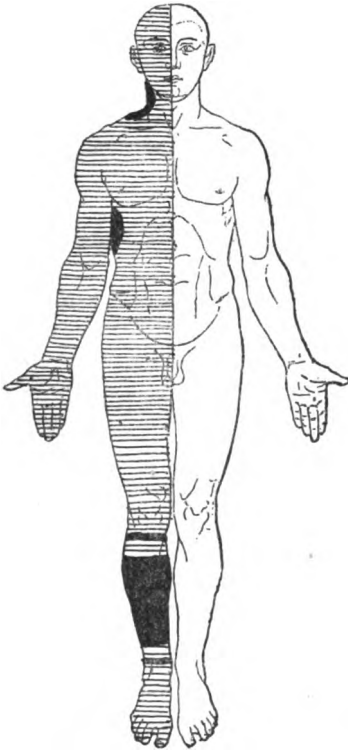
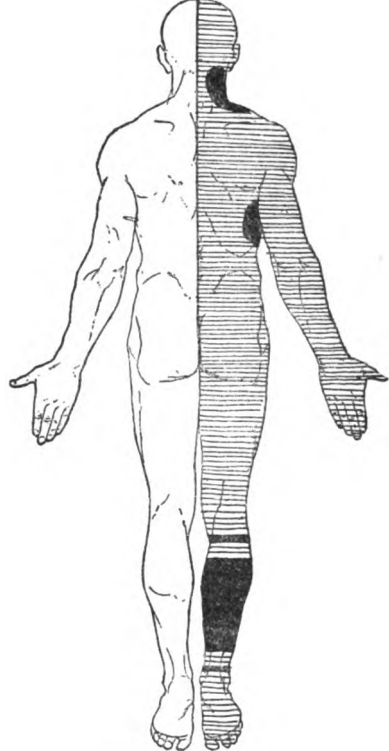


FIG. 2.



Distribution of anæsthesia in a case of hysteria, accurately limited by middle line; black shading shows areas of complete anæsthesia and analgesia; heavy lines indicate limits to which area of complete anæsthesia rapidly shifted.

smell is about the same on the right as on the left side. The vision of the right eye is less acute than that of the left, and the visual field is somewhat contracted on the amblyopic side. He hears equally well on either side. As before noted, there is no facial paralysis, and the tongue is protruded without deviation. Now let us return to our anæsthesia of the right leg, the extent of which we carefully outlined and marked. You will remember that its borders were sharply defined.

There was no gradual blending of the area of the absolute anæsthesia into that of relatively slight anæsthesia. In the mean time the patient has not seen our marks and we now close his eyes while we re-examine. We find the same thing. Complete anæsthesia and analgesia in the form of a stocking-leg, with sharply-defined borders. But you see the upper border is now about two inches higher than before, and the lower one an inch lower. (Figs. 1 and 2.) Let me remind you, too, that this area of anæsthesia does not correspond to the distribution of any cutaneous nerve or nerves, nor to the nerves springing from certain segments of the spinal cord.

Here is another important point in the examination of this case. As demonstrated, the anæsthesia on the trunk is present on the right side, while on the other it is not, and he acutely feels the prick of a pin. If I now make a mark down the middle of the sternum with a soft pencil,—a mark about a sixteenth of an inch wide,—along this (right) edge of the mark he does not feel the pin very much, it is not painful, whereas if I go one-sixteenth of an inch away, along the other (left) edge of the mark, it hurts him the same as it would you or me. This sharp limitation of the anæsthesia applies to its entire middle-line border. In other words, from the top of the head to the perineum a line one-sixteenth of an inch wide, or less, serves to separate normal sensation from decided anæsthesia and analgesia. We may even demonstrate this on the penis. There is considerable analgesia on the right side, just up to the middle line. As soon as I stick a pin on the other side he feels it as much as any one. That is to say, not very acutely, for the penis is not a very sensitive organ. I believe it is not very generally known, but it is not very sensitive either to touch or pain. But to resume our examination, we find also that there is anæsthesia of one-half of the urethra and of one-half of the tongue and buccal cavity back to the pharynx. The exact limitation of the anæsthesia to the right side of the body, then, includes not only the cutaneous but the muco-cutaneous and mucous surfaces. I need not consume your time in demonstrating these features. In one foot we find an indication of ankle-clonus; otherwise the reflexes, although somewhat brisk, are exactly the same on both sides,—that is, they are neither diminished nor exaggerated on the paretic and anæsthetic side.

Further examination is practically negative.

We have studied the history and the symptoms of this case, but before giving utterance to the diagnosis, which you doubtless all have in your minds, let me say a word or two about the next patient.

TUMOR OF THE BRAIN.

CASE II.—Here we have a laborer, thirty-three years of age, whose trouble came on rather gradually, with headache and a few attacks of dizziness, in which there was, perhaps, an approach to unconsciousness, although he never fell. Following this period of headache and dizziness there occurred increasing loss of vision. Remember, the first patient has lost somewhat his power of vision in the right eye. This one first began to lose vision in the left eye, but the other rapidly became involved, and he is now totally blind. His condition in other respects is somewhat similar to that of the former patient. First, there is comparative weakness of the right half of the body. The grasp of the right hand registers by the dynamometer 35, that of the left, 90. You observe the same difficulty in standing and hopping upon the right foot as the other patient displayed. He cannot hop nearly so well upon the right as upon the left, and he loses his balance easily. Second, in testing with a camel's-hair brush and with a pin, we find that sensation is diminished somewhat upon the right side, but the anæsthesia and analgesia are not nearly so marked as in the case of the other patient. Then notice as we approach the middle line that sensation is not the same; it gradually grows better, but some slight anæsthesia may be discovered across the middle line on the "normal" side. There is not that sharp delimitation that there is in the former case. (Figs. 3 and 4.) I forgot to mention one point. The other man has a slightly smaller palpebral fissure on the right side than on the left. In this patient the opposite is true. You will notice that the left palpebral fissure is slightly narrower than the right one, and the left side of the face is slightly more mobile than the other side. The naso-labial fold is deeper on the more active side. This difference, you remember, was not observed in the previous case. Now comes the most important symptom. This man is to-day blind, but when I first saw him, a few months ago, he was not. At that time examination showed that he had right homonymous hemianopia,—that is, he did not see in the right half of the visual field of either eye. An object approached from the right towards the central point of vision was not perceived by either eye until it reached almost the fixation point. He presented one more important symptom, which at that time was difficult to demonstrate, but which now is very apparent,—namely, slight aphasia, more especially motor aphasia,—that is, difficulty in formulating the word which he knew and wanted to say. We can now elicit the symptom without any difficulty. You observe that he apparently cannot

find the names of articles with which he is familiar, but recognizes them at once when spoken to him. It were, perhaps, more accurate to say that he has the words in his head but cannot get them out into the world. His ideas seem clear, but he cannot deliver himself of them for want of the necessary words. What additional symptoms has he? The tendon reflexes on the right side have increased since he first came under observation. For several weeks he has been greatly troubled

FIG. 3.

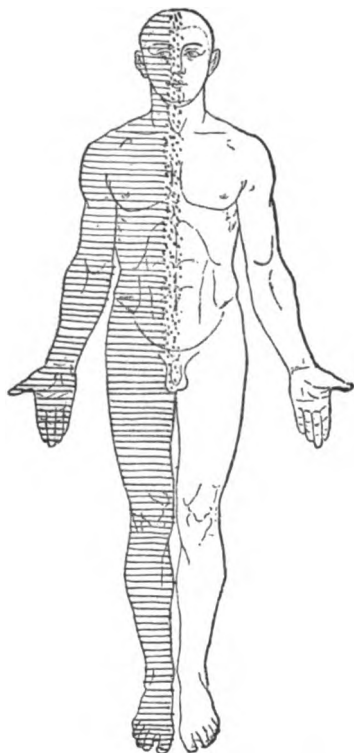
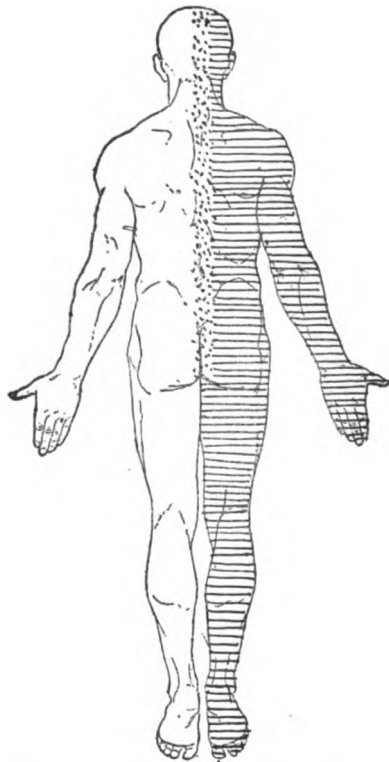


FIG. 4.



Hemianesthesia in a case of brain-tumor. The dotted shading indicates that the anesthesia diminishes as the middle line is approached, and extends slightly beyond it on to the normal side.

with hiccough, but he has more than all of these; he has double choked disk with consecutive atrophy,—that is, he had formerly typical choked disk, and now, through the œdema and swelling it is easy to see that consecutive atrophy is taking place.

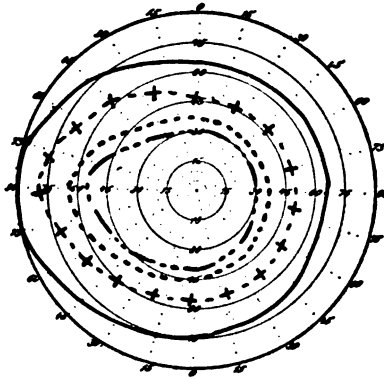
Now we are ready for our diagnosis. What was the first case? Hysteria. The second? Tumor of the brain. Even judging from the history alone they could be nothing else, yet in certain respects the two

cases are similar. Both have paresis of the right side; both have anæsthesia of the right side; they both have persistent and uncontrollable hiccough; both have a difference in the palpebral fissures; both have trouble with vision, including alteration of the visual field, and, I will add, that both of them have, or have had, at times, a depressed mental condition. But the distinctions are more striking than the similarities. Take some of the prominent symptoms of the first case. For instance, the symptom of which he complains most,—the hiccough. It has been periodical for two years, at first recurring regularly at intervals of four days, afterwards at intervals of eight days,—i.e., four days on, four days off. These periods have never varied. Such a regular periodicity in any spasmodic affection means hysteria. I repeat, any such regularity, continued for a length of time even approximating two years, means hysteria and nothing else.

Then let us consider his sensory abnormalities. He has marked anæsthesia of the right side, with comparatively little paralysis. He has been able to walk about and to work, although the right side is not as efficient as the left,—in other words, the anæsthesia is greatly out of proportion to the paralysis. This, in the great majority of cases, means hysteria. Complete hemianæsthesia, with paralysis of the extremities only, ordinarily indicates hysteria. Hysterical anæsthesia of half the face is frequent; hysterical facial paralysis, very, very rare. Furthermore, he has over the back of the neck, extending down towards the shoulder and up into the occipital region, an area of very much increased anæsthesia and analgesia; in fact, a total loss of sensation. It does not correspond to the distribution of any spinal or cutaneous nerves. It does not correspond to any area of the brain, nor to any spinal segment or segments. In other words, a lesion cannot be so located in the brain, in the cord, or in the peripheral nerves, except locally, right in this area of distribution, which will cause anæsthesia in the form of such a plaque. The same applies to the anæsthetic patch on the right side of the trunk, and, local disease being excluded (*e.g.*, neuritis and anæsthetic leprosy), such anæsthetic plaques mean hysteria nine times out of ten. Next, he has anæsthesia which is almost absolute, extending, as I have demonstrated to you, from below the knee to above the ankle, which is limited by a circular boundary above and below, this boundary being exactly at right angles to the long axis of the limb. Such a distribution occurs only in hysteria. Again, the anæsthesia of the right side is exactly limited by the middle line, the sixteenth of an inch sufficing to cover the distance between pronounced anæsthesia (and analgesia) and perfect sensation. This, too, is characteristic of hysteria.

More than this is a fact which I have found of exceeding value in making a ready diagnosis in these cases. I do not know of any one who has called attention to it. You saw a few moments ago that I could demonstrate conclusively that the border of the total anæsthesia of the leg rapidly shifted about two inches. You recall that at first the anæsthetic area was sharply limited by a certain line about the limb; two or three minutes later it was still sharply limited by a line drawn exactly about the limb, but that boundary had shifted upward fully two inches. (Figs. 1 and 2.) That is perfectly typical; it is absolutely pathognomonic of functional disease, simulation being ex-

FIG. 5.

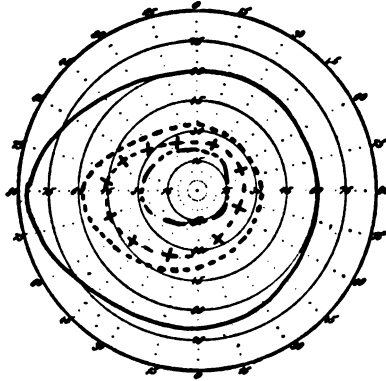


Normal field of vision: — = white, - + - = blue, ---- = red, ---- = green.

cluded. It might be well to remark that the border of the anæsthesia does not necessarily shift outward; it may move inward, making the anæsthetic area smaller. It is the rapid shifting, the sharp delimitation being retained, that constitutes the diagnostic criterion. In addition, the patient has loss of sensation of the accessible mucous membranes, which is also exactly limited by the middle line, the same as is the cutaneous anæsthesia. He has loss of sense of taste on the right half of the tongue, corresponding to the anæsthesia. He has on the same side a diminution of visual acuity, with contraction of the visual field for colors and inversion of the color-fields. I did not take the time to demonstrate this, but I will show what I mean by illustrating it first on the board, then on the patient. By the field of vision we mean the distance sideways, up, and down at which an object or color may be recognized, while the subject is looking straight forward. The normal field is sufficiently accurately known for practical purposes. It varies somewhat in different persons. The field of vision for white or form

extends about ninety degrees outward or on the temporal side; you may recognize the presence of an object at a right angle from the line of vision, but if the object be colored you cannot recognize the color at ninety degrees. It will have to be brought around farther towards the fixation point. This applies to all meridians as well as to the horizontal. Our field of vision, then, is more restricted for colors. If the object be blue, its color is recognized farther towards the periphery of the field of vision than if it were of any other color. Red comes next in the normal sequence,—that is, the field of vision for red is somewhat smaller than the field for blue, and green is the smallest.

FIG. 6.



Fields of vision in a case of hysteria: — = white, - - - - = blue, = red, - . . . = green.

Those are the colors usually employed in testing the field of vision. (Fig. 5.)

In hysteria with diminution of visual power, you will almost uniformly find a contraction of the field of vision, and with a typical contraction you may make a diagnosis of hysteria without the aid of any other sign or symptom. A typical contraction of the field of vision in hysteria is, in the first place, concentric,—that is, it is about uniformly contracted in all its diameters. It is as though it were carefully squeezed down towards the centre from all directions. There are no re-entering angles; one side is not greatly flattened or wanting. The next typical condition is that the blue field is as small as, or smaller than, the red one, reversing the normal order. This is called inversion of the color-fields of vision. There are many more ocular signs that I have not time to consider at this time. Now to demonstrate the contracted fields on the patient. For great accuracy a perimeter is neces-

sary ; for ordinary clinical work we may, after a little practice, rapidly estimate them. In this instance it is easy to do so, as the fields of the left eye are normal, and we can readily compare the two sides. I sit facing the patient, with my face a foot to eighteen inches from his, and see that he looks with his left eye straight into my right one. I then hold my little color-carrier about a foot to his left, with the white disk (one square centimetre) turned towards his eye. As I move it forward you see he perceives it at ninety degrees,—that is, a line drawn from my eye to his and then to the object would make a right angle. I now turn the blue disk towards him and bring it forward in the arc of a circle towards my own eye. You see I must advance it a little farther than I did the white one before he recognizes the color. When I change to the red disk, I must bring it still farther around, and the green one I have to move nearly half the distance towards my own eye before he can correctly call the color. The same rotation is observed as I approach the disks towards his fixation-point (my eye) from above, below, etc. As I go through the tests on the other side (he now looks at my left eye), you notice at once not only that I must pass the colored disks over a longer arc of the circle before they are recognized, but also that the blue must be farther advanced than the red,—just the opposite to the finding on the normal side. (See Fig. 6.)

We have already found sufficient symptoms to make an absolutely certain diagnosis of hysteria in this man's case. But I beg of you, gentlemen, to remember that the presence of hysteria does not exclude organic disease. Hysteria may be accompanied by locomotor ataxia, tumor of the brain, Bright's disease, phthisis, or any disease known to medical terminology. Therefore we have not only to decide whether or not the patient has hysteria, but we must determine whether or not he has some organic or functional disease in addition to it. That is why I concluded our examination with the statement that the rest of it was negative. We do not find evidences of organic disease, but we do of hysteria. The diagnosis, then, is complete.

In the second case we have an entirely different picture. There is aphasia, which is exceedingly rare as a symptom of hysteria. It is known, but very rare. I have seen only one typical and perfect case. Furthermore, hysterical aphasia is ordinarily very easily distinguished from an organic aphasia, in that the patient reads (to himself) with his usual fluency, and in writing expresses his ideas clearly and readily. This is an exceedingly great rarity in organic aphasia. He has, or rather had, homonymous hemianopia. Such a thing has been recorded

in only two or three cases of hysteria. For years it has been said that there was no such thing as hysterical hemianopia, but one or two examples have been reported by Mitchell and de Schweinitz and another by Janet.

This man, in marked contrast to the other, has motor weakness out of all proportion to the sensory disturbance,—in other words, his anæsthesia is slight, while the motor trouble is rather severe. This is the rule in all kinds of organic disease of the nervous system, including affections of the peripheral mixed nerves, of the spinal cord, brain, medulla, pons. But it is not always so. It is especially the rule in brain-disease. The anæsthesia, as before noted, is not sharply limited by the middle line. This also is the rule in organic disease. His hic-cough has shown no tendency to periodicity or rhythm, so striking in the first case. The man's reflexes have increased on the paralyzed or weak side, while the other patient's have not. This patient has a slightly enlarged palpebral fissure on the right side, due to the facial paresis; the other has slight contraction of the fissure on the same side, because of a slight palpebral spasm. This is frequent in hysterical amblyopia. Furthermore, this man has double choked disk. The disks of the other patient are absolutely normal. Besides, as a positive symptom of brain tumor, this man has constant and severe headache. He is totally blind. Hysterical amaurosis is very rare. His pupils do not react to light. In nearly all the recorded cases of hysterical blindness they have reacted perfectly. He has had dizziness and several slight epileptoid attacks. These are exceedingly important in making a diagnosis of brain tumor; they occur in some degree or other in the great majority of cases and frequently very early in the disease.

The prognosis and treatment are, of course, entirely different in the two cases. This man has been trephined over the left parietal area, as you observe. He has an opening there about four inches long by three and a quarter inches wide. The pulsation of the brain is to be felt and there is high tension. The operation was not performed with the object of removing the tumor, but as a palliative measure for relief of the violent headache and choked disk; if possible, to prevent blindness. Blindness, however, in this case had supervened before the operation and there was but slight hope of restoring sight. There was rapid amelioration of the severe headache, although the other symptoms have progressed. His aphasia and motor weakness have increased.

LOCOMOTOR ATAXIA AND DEMENTIA PARALYTICA.

CASE III.—You noticed in the previous cases, especially the one of brain tumor, that there was some dizziness and some incoördination. In trying to walk or to stand on one leg the patient had considerable difficulty in preserving his equilibrium. Here, also, is a patient who has very considerable difficulty in preserving his equilibrium; difficulty in walking and standing, one leg being worse than the other. He is thirty-five years of age,—about the age of the other patients. His difficulty first came on about two years ago. It commenced with pain in his legs and some slight difficulty in walking, followed by dizziness, but no headache. These symptoms gradually increased, and with the apparently increasing weakness came inability to get about well, and then followed impairment of vision, just as in the last case. There has been a rapid diminution of visual acuity, which has progressed to absolute blindness. The right eye was first affected, then the left, and in four months he has become completely blind. The period of the other man's progress from impaired vision to blindness was approximately the same.

On examination we find here also, as in the other patients, some mental symptoms. The patient himself says it is not so. But he does not reckon or count as well as he formerly did. He makes mistakes in answering easy questions in multiplication and easy sums in mental arithmetic. His memory is somewhat impaired. He has a difficulty in speech. The former patient showed us an imperfection in speech very distinctly, as does this patient, but here the difficulty is of an entirely different kind. He has no aphasia, but there is difficulty in pronunciation. It is in the enunciation of a word that his imperfection lies, and not in failing to find a word and use it in the function of speech. He has difficulty in enunciating distinctly the letters, the sounds, the successive syllables, particularly those which are formed by the use of the lips and tongue. Such speech has been called "stumbling," and much resembles the lingual efforts of a drunken person. In speaking, you will notice that there is a considerable tremor about the mouth and lips. There is marked tremor of the tongue. One eye shows a tendency at times to swing outward. That was noticeable also in the other patient. In spite of a superficial resemblance, we find in examining this man an entirely different set of symptoms from those found in the preceding patient. He has no choked disk, but atrophy of the optic nerve. The other patient has also some atrophy, but of quite another nature; it is secondary, due to preceding optic neuritis or to

choked disk. None of the signs of choked disk are present in this case. There is primary or simple atrophy of the disk, which indicates a totally different pathological condition.

Further, instead of there being an accentuation of the deep reflexes, they are in this man entirely abolished. In spite of his extreme difficulty in locomotion, his motor power is very fair if we take the pains to demonstrate it. As he gets upon his legs you will observe great apparent weakness. He walks with difficulty, with uncertainty, and seems to have a weak gait, but when you tell him to straighten his leg out he stiffens it so that I cannot bend it. He has no paralysis. The dynamometer registers in the right hand 85, in the left 110, which is a good grasp for a man of his muscular development. But you will have noticed that he seemed to have some difficulty in getting the leg out straight. This gave the motion an appearance of weakness that did not exist. There were movements of uncertainty as if he did not know how to manage the member, and, indeed, scarcely knew when it was straight. Once the impulses were properly directed and arranged, we found no lack of strength. That is, he has very marked incoordination, marked ataxia, more highly developed in the lower than in the upper extremities. He also has anæsthesia, but his anæsthesia and analgesia are strikingly different from those of either of the other patients. First, examining him from above downward, we find no anæsthesia whatever until we reach about the level of the nipples, when we come upon a narrow zone about the trunk where sensation to touch is lost. Along the middle of the anæsthetic zone pin-pricks are not painful, but over the greater part of it sensation to pain is normal. The area of anæsthesia, in contradistinction to that of analgesia, is much wider. Sensation above and below that zone is good. There is, in other words, an anæsthetic band about the body, more or less regular, above and below which sensation is normal. The zone of tactile anæsthesia is comparatively broad, while that of analgesia (loss of pain sense) is relatively narrow. In incipient cases the latter is entirely wanting. Second, as we continue our examination we shall find that he has also diminished sensation on the lower extremities, more pronounced the farther down we go. If we stick a pin into either leg it does not hurt him, but he at once recognizes light touches with the finger or a camel's-hair brush. He perceives the touch of the pin-point also, but has no sense of pain. In short, there is marked analgesia and exceedingly slight or no tactile anæsthesia, exactly the reverse of the sensory conditions in the zone about the body. (Figs. 7 and 8.) We found nothing of this kind in the other cases. This patient

has lost the pupillary reflex to light. But he is absolutely blind from atrophy of the optic nerves, and hence no impulse can be sent to the motor nucleus of the iris, therefore we can draw no conclusions from this symptom as to the patient's disease. In blindness from optic atrophy the light reflex is always lost, no matter what the cause of the atrophy may be. For instance, the second patient's light reflex was abolished, although his disease is entirely different from that of this

FIG. 7.

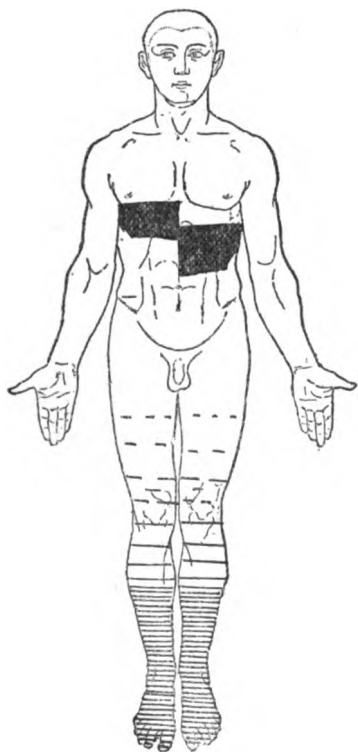
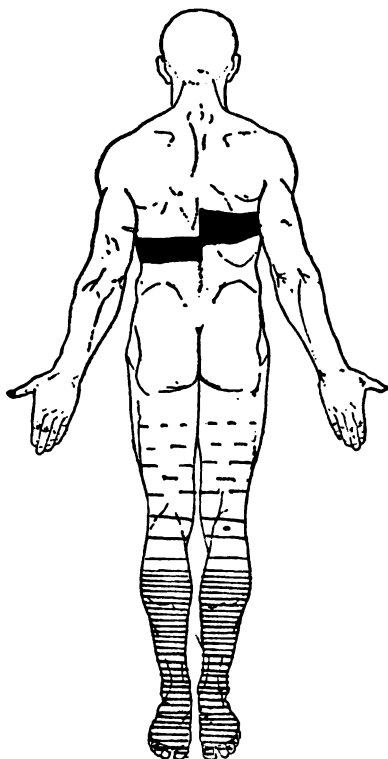


FIG. 8.



Sensory blunting in a case of locomotor ataxia; anæsthesia about the trunk; analgesia on the legs. (Ordinarily the trunk anæsthesia on the two sides is more nearly on a level.)

one. There is one other symptom to which I would particularly call attention, because it is one of the recent discoveries in the symptomatology of this affection. There is analgesia of the trunk of the ulnar nerve. You are all well acquainted with the "funny bone." If you press the ulnar nerve at the point where it passes between the condyle of the humerus and the olecranon sharply against the condyle it is decidedly painful. Executing this little manoeuvre on our patient, we

find that the discomfort is not nearly so acute as it should be. So there is in this case analgesia of the trunk of the ulnar nerve. The patient has also loss of sexual power and considerable vesical weakness.

Here, again, we have a patient with apparently progressive weakness, progressive dizziness, progressive loss of vision, with progressive difficulty in retaining his equilibrium. He has also some mental impairment and difficulty in speech, and yet his affection is entirely different from that of the preceding patient. That man has a tumor of the brain, while this patient has locomotor ataxia combined with dementia paralytica,—a combination, by the way, which is not at all rare. His incoördination, loss of knee-jerk, optic atrophy, anæsthesia, ulnar analgesia, ocular paralysis, loss of sexual power, and vesical disturbance he owes in greatest part to the spinal affection (locomotor ataxia); the diminution of mental power and memory, the stumbling speech, tremulous lips and tongue depend on the cerebral disease (dementia paralytica). Other terms for the latter affection are parietic dementia, general paralysis of the insane, and general paresis.

In the few remaining minutes at my disposal I ought, perhaps, to say a word or two about the treatment of these cases. A volume could be written on the treatment of hysteria, because it must be largely symptomatic. The symptoms of the great neurosis are so manifold that the treatment must be of the most diversified kind. It must often be widely varied for the same patient at different times. But there are a few principles which should underlie the treatment of hysteria, and these I will attempt to briefly mention. In the first place, allow me to act upon the assumption that hysteria is a mental disease. Please take my word for that without asking me at present to produce the proofs. It is a psychic affection; it is as truly a mental disease as is paranoia, melancholia, or acute mania. It is not a disease of the peripheral nerves, although the only manifestation may be pain in the course of some nerve or nerves or a spasm limited to a single nerve distribution, as witness the hiccough before us. It is not a disease of the spinal cord, although the most prominent symptoms may be such as are commonly produced by some disease of the spinal cord. It is not, in the ordinary acceptance of the expression, a disease of the brain, although, as in the patient we have seen, the most prominent symptoms may be entirely comparable to those produced by disease of the brain; for instance, the weakness and anæsthesia of one side of the body. I think I may summarize the principles of the treatment of hysteria in two words,—suggestion and education. These form the basis of the mental treatment. The symptoms of hysteria are, almost without exception, due

to the sudden or gradual growth of an idea. That idea, though, may be *entirely subconscious*. Do not forget that. If it is not at once clear to you, think it out. The patient may be entirely ignorant of the idea, the conception which dominates him. The first principle of treatment is to imitate this process of evolution, but to the opposite end,—to bring about a dissolution of the pathological “imperative conception” and develop in its place a healthy mental process. As a matter of fact, the idea is very much more frequently one of slow than of sudden growth.

Accordingly, treatment, to be successful, must be correspondingly slow and progressive. There are cases in which the hysterical symptoms, though pronounced, are so at once from the start; there are also cases in which the hysterical symptoms, and severe ones, may be dissipated in a moment by profound mental impression, by a profound influence of some kind upon the emotions or feelings of the patient. These two classes of cases are rare. As the hysterical difficulty grows gradually, so it must be eradicated gradually by developing in the mind of the patient, consciously or, preferably, subconsciously, the opposing idea. I can, perhaps, best and quickest explain my meaning by illustration. Let us suppose that we have a case of hysterical paraplegia; the lower extremities are paralyzed with or without anæsthesia, the anæsthesia being a comparatively unimportant element in most cases of hysterical paralysis. Our patient with paralysis of the lower extremities presents, of course, an inability to walk. Supposing that we have made a certain diagnosis of hysterical paraplegia, we should never think of saying to the patient, “There is no organic disease there. You have no disease of the spinal cord; there is no difficulty in your brain; this is a functional trouble. Get out of bed and walk. If you do not get up I will throw a bucket of water over you.” In most cases this will fail, and having thus failed our power for good is gone forever. We must begin gradually and say what we think is best for the mind of the patient. We say, “Let us see what you can do,” and we learn for our own guidance what the patient can accomplish. If he raise his foot an inch above the bed, and that is all he can do, we know where we have to start, and say to him, “That much you can do. Now, we want you to raise your foot twenty times this morning and twenty times this afternoon, and that is all we wish you to do to-day.” If we have not overtaxed his strength we will find that the patient will try and he will succeed. We must be reasonable and rational. The next day we say, “You did your task yesterday without any difficulty, and to-day we want you to increase it to thirty times.” It is best not

to overload the patient, as it would mean failure, and failure means temporary defeat. The next day we congratulate him on his perseverance and progress, rest for the time being at thirty elevations, but increase the height to two inches. And so the patient by suggestion and education will endeavor to make the two inches four, and each subsequent day to make it still more. In this way he makes for himself, and assimilates without knowing it, the evidence that he is improving. Be chary of adding your assertion to this. In the mean time we study the peculiarities of the individual; we find out whether he is fond of dancing, of attending church sociables, or riding a wheel. If so, he has something to strive for, and it is well to set a definite goal that he will be interested in reaching. There is the birth of our new idea,—the idea of progress, of gaining, of ultimate recovery, and of helping towards that recovery. *Pari passu*, the old dominant conception of paralysis, disability, resignation, dies out, fades away. This treatment is not suitable for all kinds of cases, but it is a rough outline of a method of treating hysteria that is bound to cure more cases than will mutilating operations, ill-smelling tinctures, or the blind use of hypnotism and electricity. As before stated, the method must be varied to suit individual cases. I have given you a simple case as an illustration of the general line to be followed. In another case you would have to do something else to make a mental impression. The less you appeal *directly* to the reason of your patient the better. Above all, never tell him or loose-tongued friends that his trouble is “nothing but hysteria.”

Let me remark, parenthetically, that hysterical overaction and over-sensation are much more refractory to treatment than the opposite conditions. Hysterical paralysis and anæsthesia are, as a rule, easily cured; hysterical spasm, as the hiccough of Case I., and hysterical pain may remain incurable for years.

Now a word or two about the treatment of tumor of the brain. If you have any doubt as to the character of the tumor, and the symptoms are not urgent, give the patient the benefit of antisyphilitic treatment. The proper treatment of syphilis of the nervous system means the administration of mercury and iodide and enough of each. That is, give inunctions of mercurial ointment in large amounts so as to “touch the gums” in about a week. Then continue them in a dose just short of that necessary to induce slight salivation. At the same time give iodide of potassium, and never less than a drachm three times a day; two drachms are better. Ordinarily you may begin at once with the former dose and gradually increase it. These amounts are, almost without exception, well borne if given after meals and largely diluted.

If an ordinary glass of water or milk is not sufficient put the dose in a pint of water, one-half to be taken immediately after eating and the remainder an hour later.

But beware of drawing false conclusions from the results, or lack of results, of this treatment. Remember that iodide of potassium will not rarely cause amelioration of the symptoms of a glioma, sarcoma, and other non-specific neoplasms of the brain. For instance, the intense headache of the patient you have seen to-day was relieved for a considerable time by iodide of potassium, but the probabilities are all against his growth being specific. I saw some months ago a case of cerebral tumor, all the distressing symptoms of which, except a weakness of one side, were relieved for three months by specific treatment. I now have that brain in the laboratory, and the tumor is a large glioma or gliosarcoma.

Remember, too, that mercury and iodide, even in heroic doses, do not remove the majority of gummata. When a gumma has become large, and a good part of it has reached the stage of cheesy degeneration, nothing short of the knife will eradicate it. Active medication may arrest its growth, diminish its size, and cause it to become latent; but sometimes it will not even do this, and a goodly proportion of gummata, when accessible to the operator, should be removed by the knife. Hence, do not necessarily conclude that because specific treatment does not cure a tumor the growth cannot be syphilitic.

In the case of a brain tumor that cannot be cured with medicine nor removed with a knife,—and let me say that such growths constitute the great majority of neoplasms within the cranium,—you may do the palliative operation,—that is, make a large opening in the cranial vault for the relief of pressure. If the tumor has been of rapid growth, do not incise the dura; if of slow growth, and danger of hernia cerebri be not too great, open the dura freely. Such an operation is undertaken for the relief of three symptoms: headache, vomiting, and choked disk. The relief is sometimes complete, and may continue for a long time. Arresting choked disk, you understand, if accomplished sufficiently early, means saving the patient's eyesight. After blindness has supervened little is to be hoped from an operation, although return of sight under these circumstances has been recorded.

Before speaking briefly of the treatment of locomotor ataxia I should like to impress upon you a single point. The symptom from which the disease is named, the ataxia, the incoördination, is never necessary for the diagnosis. It is, indeed, one of the last signs to be considered. Not only is its presence entirely unnecessary to substan-

tiate the diagnosis,—locomotor ataxia,—but, unless properly controlled, it may be very misleading, as it occurs in a number of other affections. In making a diagnosis, then, rely upon the other symptoms already noted, especially the loss of knee-jerk and pupillary reflex to light (sight being preserved), the analgesia of the legs, bladder disturbance, lightning pains, and diminution of sexual power; then the recently-discovered symptom, ulnar analgesia, and the trunk anæsthesia, which is of still more recent discovery. The vesical disturbance is an important symptom, but must often be carefully inquired for. It may take the form of relative paresis of the detrusor or relative incontinence. If the former, there will be some difficulty in starting the stream; the patient will have to wait and “push”; if the latter, he must be prompt in obeying calls of nature or a few drops of urine will escape into the clothing. Frequently there is residual urine.

Locomotor ataxia, as you know, is never cured. The patient may often be relieved to a considerable extent. The best treatment for the disordered movements, for the ataxia, is probably the plan of simple gymnastics or calisthenics advocated by Fränkel. The patient is given simple movements to execute with the extremities in order to educate him to accuracy of movement. For the lightning pains, suspension, now somewhat out of vogue, is one of the best remedies. It at times has a favorable influence on the bladder trouble and optic atrophy. For the latter complication I have of late been using strong galvanic currents, it seems to me, with some effect. The anæsthesia and analgesia are probably best treated with the galvanic or faradic brush. I have noticed in a few cases that when sexual impotence was a prominent symptom there was pronounced anæsthesia of the penis. When penile sensation had been improved by the use of the electric brush, sexual power was better. I have also known a strong galvanic current (150 to 200 M. A.) through the spine, with reversals of a current about one-half as strong, to produce considerable improvement in all the symptoms. Finally, Gowers has proposed chloride of aluminum as a drug having a good influence in this disease. I have given it a number of times in doses of four to six grains, three times daily, and all the patients have improved, but, as treatment was never confined entirely to this remedy. I am in ignorance as to the amount of good it has done.

Surgery.

ACQUIRED INGUINAL HERNIA; CONGENITAL INGUINAL HERNIA; CRYPTORCHIDISM; CYSTIFORM SARCOMA OF THE TESTICLE; HYDROCELE; ABSCESS OF THE KNEE-JOINT; TRAUMATIC SYNOVITIS; BRONCHOCELE; SCALDED HAND; IMPERMEABLE STRICTURE OF THE URETHRA; CONTUSION OF THE BACK-MUSCLES.

CLINICAL LECTURE DELIVERED AT RUSH MEDICAL COLLEGE.¹

BY JOHN B. HAMILTON, M.D., LL.D.,

Professor of the Principles of Surgery and of Clinical Surgery in Rush Medical College, Chicago.

ACQUIRED INGUINAL HERNIA.

GENTLEMEN,—The first case we have to-day is one of inguinal hernia. The hernia descends when the man stands on his feet. It is easily reducible, and, as you see, it entirely disappears while the patient is lying on his back. He states that it is with extreme difficulty that he has found a truss which will completely control the hernia, and that it is with great pain he performs ordinary labor. I shall therefore perform the usual operation for the closure of this rupture, and, with the present success attending the operation, there need be little question as to the propriety of performing it in all cases of hernia where the patient will take the time to remain in the hospital long enough after the operation. I locate the ring, and then make an incision directly over the inguinal canal so as to pass through the skin and superficial fascia, and the dissection is continued until the cord is reached. It is very much easier to make this operation in cases where the hernia actually protrudes, because then we find the sac without

¹ Stenographic report by Mr. William Whitford.

difficulty. I now uncover the external ring. Here is the cord passing into the ring. I take a pair of hemostatic forceps with rather long jaws and pass them into the external ring until the points rest at the internal opening. I do the same with another pair of forceps on the opposite side of the ring. I now divide the external wall of the inguinal canal between the forceps. I turn the flaps backward, and thus we have the entire inguinal canal exposed. This is the method of Lucas-Championnière. We are now able to reach the sac, and, having reached it, I begin to separate the fascia from it. I do this preferably with the finger, because I do not wish to injure the contents of the sac. I find the spermatic veins, and the vas deferens, lying closely adherent to the sac. I peel them off, and if the veins are very redundant, I perform the same operation that would be performed in cases of varicocele,—namely, excise the veins. If they are not redundant, we content ourselves with simply making the separation. I have the sac now pretty well separated to the internal ring, and shall now reduce the contents of the sac. In this case I think we can do it without very much trouble. We will now open the sac. You will notice lying in it the omentum, which should be replaced. We will replace it. You notice, by a little pulling we can see whether it is attached or not, and I find the omentum is firmly attached to the posterior wall of the sac; we will therefore ligate it after detachment. We seize the sac, so that it shall not slip. We return such portion of the omentum as may be easily returned, but I do not propose to give myself much trouble by returning it. We transfix it because there is a comparatively large blood-vessel here, and we might have considerable hemorrhage if we should return the omentum to the abdomen without transfixing it. I now make a chain of this ligature by crossing the ends. Making sure that I have them crossed, I tie three knots. I shall hold up the omental stump for a moment until we examine it.

It is not surprising in this case that the patient could not find a truss to fit him, because it was a physical impossibility when the hernia was protruding. It was impossible to separate the hernia from the sac. I shall not allow the stump to return to the abdomen until we have finally made sure that there is no hemorrhage from it, and then I want to free the stump from the sac. We now have the stump apparently dry, but I wish to get the sac entirely separated. It is very unusual to find an omental protrusion firmly bound down by adhesions to the sac at the internal ring. But that is the condition we have encountered in this case, and it is doubtless due to the truss which has

been worn by the patient. I have now succeeded in separating the stump of omentum from the sac, which complicated the operation considerably, because we do not usually have any such difficulty, and will be able to tie now a fresh, clean ligature around the whole mass and make a new stump. The stump is now drawn into the abdomen of its own accord because there is nothing left to hold it, and I can now take care of the sac, as we do in ordinary cases, without any such extraordinary complication. I have allowed the forceps to remain attached to the sac, so that we can keep it in view, and I now ligate the sac with a strong silk ligature. I will not resort to transfixion, because the sac has been brought down to a narrow pedicle. We let the neck of the sac escape into the abdomen.

The next step in the operation is the seizure of the cord. I now seize the cord with its vas deferens, which you see here, and separate it thoroughly. I use retractors. We place the hook around the vas deferens and spermatic vessels and hook them up, so that they are out of the way of the suture. I bring the cord at the upper portion of the incision to the internal ring at its upper border. I now suture the pillars together with silver wire, putting in from three to five sutures, according to the necessity of the case. I cause the stitch to include the muscular structure of the pillars to make sure I have got a firm, tight grip on these pillars. I have the needle passed through one side, and I now bring it through the pillar of the opposite side, underneath the cord, the cord being held above it. One of the sutures is now placed in position. We shall fasten it for the present by allowing it to remain in the forceps, and I have another suture brought through the pillars, just a little below. I feel for the tendinous pillar, making sure we have firm structures for the stitch, so that when we make pressure upon it the wire will be strong enough to hold it and bring them firmly together. In this case three sutures will be sufficient. If you can get the pubic fascia caught by the needle in the last stitch, it is all the stronger. It can usually be done. We have all the stitches that are probably required now placed. I shall now twist these wires. You can use a wire twister, or an ordinary hemostatic forceps, which will answer a very good purpose.

The ring is now entirely closed throughout its whole length. I take hold of these wires and bend them, so that they correspond in direction with the inguinal canal. It is not necessary to cover them, or to do anything in particular with the ends. We have the cord now overlying these wires, with the internal ring fully closed, but with this whole canal slit I shall now sew up the canal underneath the cord.

The external ring is sewed with silkworm gut, and the patient is allowed to remain on his back for three weeks.

CONGENITAL INGUINAL HERNIA.

We have another case of inguinal hernia in which the same operation will be performed. I regret to say that the sac has retreated into the abdomen as in the other case. I shall not detain you with a description, because we have gone over that fully, but shall at once proceed with the operation, which will have to be different from the last one. In the preceding case the hernia was acquired, while in this it is congenital. The separation has never been distinctly made between the tunica vaginalis and the peritoneum; in other words, the processus vaginalis, which during embryonic life is completely cut off in the young child, in this case has not become separated, and we have to deal with an opening that has probably existed from birth. You notice, as in the other case, the omental protrusion. I shall simply put this back, because it is not incarcerated as in the other case. The operation will be confined to cutting off the sac,—that is, we make the separation that nature should have made. We do this by simply cutting around the sac, being careful not to cut the vas deferens and the spermatic vessels which compose the cord. I first separate the fascia as much as possible. I have the cord under my finger; as there is no natural separation, we shall make it and tie off the sac. Being careful to replace the omentum, I keep my finger in the sac until the ligature firmly engages it, and I now know that no omentum is included in this ligature. I am now prepared to suture the pillars. I bring the cord up, where it was before, to the upper part of this ring, and then with silver wire suture the pillars. We will twist the wires, having carefully adjusted them through the pillars. They are taken in order, and the pillar is thus completely closed. We lay down the ends, so that they will not cause irritation, pointing in the direction of the canal and sew together this portion of the inguinal canal. The external wound will be closed with silkworm gut, laying over it iodoform gauze, and the patient will be required to remain in bed for three weeks.

CRYPTORCHIDISM.

I have next to show you a case of considerable interest. By the term interesting we usually mean a case that is rare. You will notice a swelling in the inguinal canal of this patient. It is elastic; it is somewhat movable. On examination we find the testicle absent from the scrotum on that side, while on the other side the testicle is present.

So we conclude, without going much more deeply into the conditions of the case, that we have to deal with a case of cryptorchidism, or undescended testicle. As you doubtless know, the testicle commences to vary its position on the genital ridge in the embryo almost as soon as it can be detected. By the tenth week its descent has commenced, and gradually it pushes forward what is termed the processus vaginalis of the peritoneum,—pushes it forward until the testicle has passed finally through the inguinal canal into the scrotum. It constitutes one of the anomalies of the testicle of which we read, and which is a cryptorchid. We also speak of anorchids where there is absence of the testicle.

I have here a table from the work of Monod et Terillon, which gives a classification of the anomalies of the testicle. In the first place, they are divided in two, (1) anomalies due to faulty development; (2) anomalies by defect of migration. When the testicle is once formed, it is fully formed, although it is probable that its growth continues as it passes down through its normal route. In the next place, we divide those by fault of development into anomalies of number and of size. There is one case on record of supernumerary testicle in which three organs were found, two on one side of the scrotum, and a third one in the natural place. The third testicle in that case had connection with the vena cava and arterial connection directly with the aorta.

Grawitz in 1865 gave an account of an individual who was the possessor of a supernumerary orchid. Another case was recorded in 1876 by an English physician, whose name I cannot at present recall, and was verified by post-mortem examination. It is not to be considered that we have to deal with an anorchid because we cannot find the organs in the scrotum. The testicles may be retained in the abdomen, out of reach, and we cannot find them. Then we have anomalies in number, those by excess, and those of absence. We sometimes have what is called synorchid, where there is fusion of the two testicles, and it seems that one testicle has disappeared; but a careful histological examination shows that we have to deal with two testicles which are fused in embryo. This class we call synorchids.

The anomalies in size are those of hypertrophy and atrophy. The anomalies by defect of migration are those in the case before us. Ectopia of the testicle is a condition in which the organ is found in some part of the normal route,—that is, from the original place of migration near the kidney. It then passes downward, and in some part of the route this testicle has lodged, without passing entirely through the route. This is ectopic, just the same as if it were re-

tained within the abdomen. Where they are outside of the normal route, as where some abnormal passage has been created, very frequently we find the testicle the cause of femoral hernia, and a number of such cases have been reported. Inversion is where the testicle has completely descended, but has changed in its movement. When a patient consults you for an undescended testicle, in the majority of cases among the symptoms of which he complains will be pain, and the pain is in exact proportion to whether the testicle is the seat of disease, or whether in its abnormal position it is subject to injury. In this case you can see, occupying as it does the centre of the inguinal canal, it must produce a great deal of pain from simple pressure of the clothing, and pain on locomotion.

Unfortunately, it has been found as a clinical fact that cases of ectopia of the testicle are subject to sarcoma and other malignant growths; especially is this the case in those cryptorchids in which the testicle has remained entirely within the abdomen. I have myself seen a number of cases of sarcomatous growths developing in undescended testicles. If the cord is long enough, it is proper to restore the testicle to the abdomen; but if it is not long enough, then we should simply extirpate it. I think there is but one of two courses to pursue in this case. There is but little use in making extreme tension on the cord, because if we have to leave it to gravitation of the organ, whereby atrophy would result, the pain would not be stopped by the operation. I shall therefore make an incision in the direction of the inguinal canal, with the view of exposing this organ. After having exposed it, we can then determine whether or not the cord is long enough to enable us to pull it down into the scrotum. If the cord is too short, we will simply remove it. It is only proper to say, in order that you may guard against a similar mistake, that this patient came here with a diagnosis of hernia. Of course, it is a very pardonable error in a case of this kind, on account of the extreme rarity of the condition. Here we know that this is the lower end of the testicle. Instead of passing downward, it passed upward towards the crest of the ilium. It is therefore practically a case of inversion, a defect of migration. We will try and see if it cannot be brought into position; and it looks as though it might be done. I find the tension is too great. The cord seems to have become shortened. You will notice, with that great strain upon it, it cannot be pulled down to the scrotum, because the upper part of the cord is very firm. We will therefore enucleate and remove it. We ligate it as we would ligate any other pedicle, and here I shall use chromicized catgut. I am now

tying the epididymis, which has become fastened in its new position. You see we have the epididymis and its vessels, as well as the point of the testicle. It should have been downward in the sac in this position. We have it exactly reversed and turned into the ring. In order that there shall be no complication, we sew up the ring, because the testicle has passed into the inguinal canal, and we do it precisely as we sew up a hernia, except it will not require perhaps the same number of sutures. Besides, as the cord is entirely out of the way, we have no trouble. In this connection I am prompted to say that castration was one of the ancient methods of treatment for hernia. It is perfectly easy to close the pillars of the ring when the cord is out of the way. I have now, as you see, made a complete closure of the ring, and it will be sewed up firmly and strongly with silkworm gut.

CYSTIFORM SARCOMA OF THE TESTICLE.

We have here a case of anomalous tumor of the scrotum. A member of the class who has examined it says it is a hydrocele, on account of its location and fluctuation. It may be a hydrocele, in which case we will find fluid in the tunica vaginalis, or it may be a spermatocele. A spermatocele is an extremely rare form of cyst, beginning in the epididymis by the damming up of some portion of the seminiferous tubules, whereby they become dilated, and the only way to determine it is by an exploratory syringe. The fluid in this case does not seem to be free in the tunica vaginalis, because it does not pass upward in the inguinal canal. At first sight it seems to be an enlarged testicle. There is very little fluctuation. It is distinctly separable; it does not enter the inguinal canal. It is therefore to be distinguished from hydrocele of the cord. There is no impulse on coughing, consequently there can be no communication of this tumor with the abdomen. We will use an exploring syringe, to see what we can find. In the first place, we may find retained spermatic fluid, but there is usually a marked difference in color. There is a milky fluid in the one case, whereas the fluid withdrawn from hydrocele of the cord is straw-colored or greenish. But sometimes, if the cyst is a very old one, we cannot detect it in that way, and it can only be determined by the microscope where dead and living spermatozoa are frequently found even with a low power. I do not undertake to make this diagnosis clear between spermatocele and hydrocele without first making an exploratory puncture, which I shall now proceed to do. A point we must remember is this,—that hydrocele is extremely frequent, while spermatocele is very rare,—fungosities, as they are termed, of

the testicle. The fluid is clear, and it therefore simulates a hydrocele, except that all parts of the testicle do not fluctuate.

You will notice, on opening the tunica vaginalis, that there is no fluid; the testicle moves freely; that this fluid is within the cavity of the testicle; and we have opened the tunica vaginalis without getting very much fluid. The question is, What is the nature of the fluid in this testicle? It is not testicular fluid. I have reason to believe that we have in this case a sarcoma of the testicle, which will therefore have to be removed. It begins to show something of the appearance of a spermatocele, but it cannot be distinctly told until the microscope is resorted to. We have to deal with a cystic formation. I prefer in all cases of castration to sew up the tunic separately from the scrotum, so that it will correspond as nearly as possible to the normal condition of the part, and I do this with a continuous suture of catgut, closing the scrotum with silkworm gut.

HYDROCELE.

In this case we have marked elasticity. The tumor bends on itself. That was impossible in the other case. Here is the vas deferens. It is probable that we have to deal with an ordinary hydrocele, but we will take no chances. You see the greenish or straw-colored fluid characteristic of hydrocele. There is no question about such a case as this. How shall we treat simple hydrocele? First, by withdrawing the fluid, and next, by the injection of carbolic acid solution or of tincture of iodine. Personally I prefer tincture of iodine to other forms of treatment. In cases of complicated hydrocele, such as multilocular hydrocele, which is not infrequently met with, and where the tunica vaginalis is divided into compartments with fibrous bands, it is of no use to make an injection in a single place, because you do not reach all of the compartments; therefore an open incision with drainage and iodoform gauze are to be recommended. In this case we will tap the hydrocele and inject tincture of iodine. In performing this little operation you must remember that we may do a great deal of injury to the testicle, to the epididymis, or to the spermatic artery, if we are not exceedingly careful. We must be particular where the point of the trocar goes. First I find the position of the testicle, then seize it with the thumb and finger so as to avoid injury. After we have found the testicle, we then pass the trocar in front of it, and allow the fluid to escape. We next inject the iodine.

You will remember that the fluid withdrawn in the other case was perfectly clear, neither milky nor straw-colored. A hydrocele is very

rarely filled with clear fluid. Usually it is straw-colored and presents a slight greenish tinge. This clear fluid is only found in cysts, such as a cystiform sarcoma and in cases of spermatocoele.

ABSCESS OF THE KNEE-JOINT.

We have before us the little child who had a suppurating knee-joint. You will remember that on Saturday last we made a diagnosis of abscess of the knee-joint from traumatic synovitis, which had become infected. Pus formed in the cavity of the knee-joint and lateral drainage was established. The child seemed to do pretty well for the first twenty-four or forty-eight hours, but recently the temperature has arisen, and last night it rose to 104° F. It is, therefore, perfectly clear that the drainage instituted was not sufficient; that more drainage will have to be established in this case. We must get the pus thoroughly cleared out of the joint, so we will introduce another tube and make posterior drainage. A drainage-tube was placed under the patella the last time the child was here. We shall now raise the leg and I shall pass this forceps alongside of the tube. I shall seek to find the hemorrhagic oozing. I shall pass a larger tube, a great deal larger, than the other one, through this joint. By examining the inside you will notice that we have passed it at an angle of an inch and a half lower down than the other tube. There is every probability that this drainage will be sufficient.

TRAUMATIC SYNOVITIS.

This man received an injury of the knee by a needle being thrust into the joint and breaking off. It seems that the attending physician was able to extract the needle, but there is at present a little synovial effusion. As the inflammation is not very acute in this case, I would advise the patient to use elastic compression. If there were a great deal of synovial effusion, it would have to be withdrawn either by aspiration or by a trocar, and then elastic compression used. As it is now, I think I would try the use of a rubber bandage for a short time, say a week, and in case the fluid is not absorbed I would then aspirate and use compression.

BRONCHOCELE.

We have here an enormous goitre. I wish to call your attention to a practical point in connection with bronchoceles,—that is, where you see the two lobes flattened out on either side of the neck, if you undertake an operation you will be surprised to find how adherent they are. Moreover, this surprise is not always an agreeable one. On

the contrary, they are only extirpated with the greatest difficulty, as I have had frequent occasion to know. In these pendulous bronchoceles, where they project forward and are not bound down by the muscles, you can remove either lobe without making a cross-section of the sterno-cleido-mastoid muscle and freeing it, but in the first-named variety you will find it so attached to the deep fascia of the neck as to be a matter of extreme difficulty. This patient is here only for injection, so a more radical operation does not particularly concern us.

In making an injection of carbolic acid in this case we simply locate the vein and then pass a needle in such a way that it will not interfere with it, doing the same thing with the other side. Another point about injecting bronchoceles, or injecting any gland, where you use carbolic acid, if you thrust the needle in quickly the patient experiences but little pain. If it is done slowly, there is always more or less pain connected with the operation.

SCALDED HAND.

The next case is one of scalded hand. It is to be treated precisely as any other burn,—namely, by prevention of infection by the use of “carron oil” which has been carbolized, and keep it constantly wet or rather immersed in this mixture. Carron oil is made of lime-water and linseed oil, but in this case the lime-water should have an additional five per cent. of carbolic acid. We apply it on gauze, lay it over the part, and over that cotton. Where the burn is superficial, you may relieve the patient greatly by the use of drying powders, such as aristol, bicarbonate of soda with bismuth, or something of that sort. As a rule, however, we find that the deeper the burn the greater the necessity for moist antiseptic dressings. A burn of this degree, which involves the thumb on one side of the hand, the true skin, and the subcutaneous fascia, is a deep burn, and in such a case a wet dressing should be applied. The dressing should be an oily one. If the burn goes deeper and involves the muscular structure itself, we would hardly expect to escape infection unless we use some antiseptic and keep the part constantly bathed.

IMPERMEABLE STRICTURE OF THE URETHRA.

This man complains of some difficulty in micturition. He has sediment in the urine, and suspects some disease of the bladder. He has constant pain. We will, therefore, try to pass a sound into the bladder for the purpose of ascertaining whether there be any disease of this viscus. I find the sound passes easily until it reaches the

membranous portion of the urethra, and I cannot pass it beyond this. We will now try to pass a smaller sound. There is nothing in the history of the case to lead me to suspect a stricture. When the sound reaches the membranous portion it passes in any direction rather than straight ahead. That is so unusual that we must suspect a stricture. I will see if we can pass a filiform guide. I have here a whale-bone guide. Impermeable or impassable strictures are those into which we cannot pass an instrument. Such a stricture is very seldom encountered. You may read of these strictures, but remember they cannot exist very long, unless the urine passes in some way, so the stricture must be impermeable for a few hours only. I do not succeed in passing either of these guides at present. I will introduce some more guides. In a case like this more patience is required than one is disposed to give to it, particularly at the close of the clinic, and I will simply test this now and see whether or not this Otis instrument, with a little different angle, can be threaded over this guide. The guide is engaged in the stricture; it does not pass it. This stricture is a difficult one, and I do not know when I have had one of this kind. This patient should be taken to the hospital, and the surgeon should then take his time in trying to pass instruments. Sometimes we can pass a large instrument when a smaller one is arrested by some false passage. I am not justified in using more force in trying to pass an instrument in this case to-day. I would, therefore, advise that the patient go into the hospital, be given a bath, and then plenty of time taken to introduce instruments into the bladder; failing in that, we must perform a perineal section or a suprapubic cystotomy.

CONTUSION OF THE BACK-MUSCLES.

The next patient comes to us complaining of muscular pains from an injury which he received three months ago. There is nothing to be noticed on examination. We have to take his word for it, and in such cases it is well enough to do this to a limited degree. I would recommend the application of broad, adhesive strips for the purpose of immobilizing the chest and the muscles. I would cover him with these strips from the scapula to the crest of the ilium, simply surrounding the chest and back so as to keep the muscles as nearly quiescent as possible. If these pains depend upon any central irritation of the spinal cord, it cannot fail to be of benefit by resting the patient. If the pain is simply from contusion of the muscles and peripheral irritation, this rest will be of the greatest possible service. In any event, we are perfectly safe in ordering some such form of

treatment for cases of this kind. If he had sustained a dangerous accident to the spine, which is not cured usually by a jacket, he would have more pronounced symptoms. He would not be able to remove his coat himself, or walk with freedom in the amphitheatre, or take a seat in a chair, nor would he act in this way if it were anything more than a slight accident to the peripheral muscles. I think we may exclude any injury to the spine in this case. Rest of the muscles is all that will be required.

**FOUR CASES SIMULATING STONE IN THE KIDNEY
FOR WHICH NEPHROTOMY WAS PERFORMED;
NO STONE FOUND; OPERATION FOLLOWED
BY DISAPPEARANCE OF ALL SYMPTOMS; SU-
PRAPUBIC CYSTOTOMY IN A CASE OF PRI-
MARY TUBERCULAR CYSTITIS; SUPPURATIVE
GONORRHOEAL ARTHRITIS OF THE RIGHT
KNEE-JOINT.**

CLINICAL LECTURE DELIVERED IN THE JEFFERSON MEDICAL COLLEGE.

BY ORVILLE HORWITZ, B.S., M.D.,

Clinical Professor of Genito-Urinary Diseases in the Jefferson Medical College; Sur-
geon to the Philadelphia Hospital and State Hospital for the Insane, etc.

GENTLEMEN,—I shall present to the class this morning several cases of more than usual interest. You were present when, during the last year and a half, I performed the operation of nephrotomy, for a condition that simulated stone in the kidney, on the cases which I shall now bring to your notice. You will recollect that in each instance, after a most careful exploration of the kidney, by palpation, puncture by means of the needle, and, in two of the cases, by incision into the organ itself, no stone was found; yet these patients have all recovered their normal condition of health, and the anomalous symptoms for which the operations were performed have all disappeared.

The first individual I bring before you was operated upon one and a half years ago.

He is twenty-eight years old, a blacksmith by occupation. He had always enjoyed good health to within eight months prior to his first visit to the hospital, when he began to suffer from a dull aching pain in the lumbar region paroxysmal in character. At times the pain would extend along the course of the ureter into the testicle. It was increased by exertion and by pressure. Palpation proved the kidney to be in its proper position and normal in size, but there was tenderness on pressure.

The patient stated that he never had had any venereal disease, and on examining the urethra and bladder they were found to be healthy. The urine was normal in quantity ; it was high-colored, and the alkalinity which, as you know, should appear about three hours after partaking of a meal, was absent. It contained two per cent. of urea ; its specific gravity was 1018, with albumen and uric acid in excess ; under the microscope epithelial cells and a few blood-corpuscles were detected. No pus could be found.

When the pain extended into the testicle the patient often suffered from a frequent desire to micturate. The pain had become so constant that the individual was unable to pursue his occupation. He had been under the care of numerous physicians without relief. From the history of the case and the examination of the urine, it was presumed that he was suffering from a stone in the right kidney, and an exploratory operation was proposed. It was performed before you in April last.

The patient was placed on his abdomen, and an incision, beginning half an inch below the twelfth rib, close to the outer border of the erector spinæ muscles, was carried obliquely across the costo-iliac space for the length of three and a half inches. After dividing the skin, superficial fascia, fat, outer border of the latissimus dorsi and external oblique muscles, the internal oblique and lumbar fascia were exposed and divided in turn to the full length of the external incision. This exposed the transversalis fascia, which, having been cut through, brought into view the perirenal fat, which was separated and the kidney uncovered. The organ was thoroughly examined by manipulation between the index-finger and thumb, but no stone could be detected. An exploring-needle, two and a half inches in length, was passed into the structure of the gland at eight different places with no better success. The wound was irrigated, a drainage-tube inserted, and, as there was some oozing of blood from the needle punctures, iodoform gauze was packed into the wound and brought out alongside of the drainage-tube at the lower angle of the incision ; this was removed in forty-eight hours. The tube was withdrawn on the third day. The wound was closed by means of interrupted silkworm-gut sutures, which were removed on the seventh day, the patient leaving the institution on the fourteenth day after the operation, his pain having completely disappeared. He states that he has been in perfect health ever since.

The second case was brought to me by Dr. Harris, of Wilmington, and was operated upon before the class in May last. At that time he gave the following history.

He was forty-five years of age, a laborer by occupation, and had enjoyed perfect health up to two years previous to his admission to the hospital, at which time he began to suffer from pain in the small of the back, on the left side, which would at times extend to the testicle. At first the pain was paroxysmal in character. It would be severe for several hours, then gradually subside, and finally disappear. It might remain absent for two or three weeks, only to return with renewed force. As time went on the attacks became more frequent. The intervals between the remissions gradually shortened until, at his admission, it was almost constantly present. Sometimes the severe attacks of pain were associated with slight nausea. His urine at times was thick, especially after a severe paroxysmal pain. Had never passed a calculus nor blood.

Lately he has been losing in strength, and the pain prevents him following his occupation. Hitherto the numerous remedies prescribed have failed to bring relief.

There was no venereal history. On examination the urethra, prostate, and bladder were found to be normal. The left kidney was in its proper position, but sensitive to the touch.

The specific gravity of the urine was 1020; it contained two per cent. of urea; albumen and the phosphates were present in excess. The microscope showed the presence of epithelial cells and blood-corpuscles, but no pus.

The method of operation in this case is that recommended by Edebohls. The patient, being etherized, is placed on his abdomen and his legs flexed at right angles to the thighs; they are held in this position by fastening the feet to stirrups arranged for the purpose at the foot of the table. They are elevated in this manner until the knees of the patient lightly touch the operating table. A large rubber bag, filled with air, is now put under the patient's abdomen, and so arranged that its upper edge comes about on a line with the umbilicus. An incision is then made a quarter of an inch below the twelfth rib, and just at the outer border of the erector spinæ mass, carrying it parallel to the muscles downward towards the crest of the ilium for about three and a half inches. The structures are then divided, layer after layer, in the usual manner, until the fat enveloping the kidney is reached, care being taken not to open the sheath of the erector spinæ muscles. When this has been exposed, the assistant picks up the fat, by means of a pair of hæmostatic forceps, on each side of the incision, and draws it gently into the wound; it is then divided and the kidney is exposed, when the fat is cut away from each side. This manœuvre not only permits

of better manipulation of the kidney, but lessens the danger of mortification of the fatty tissue, which would have a tendency to prevent the rapid healing of the wound.

After exposing the kidney, an assistant grasps the knees of the patient and draws him slowly and gently downward on the table; this rolls the kidney bag beneath the patient upward towards the thoracic cavity. The patient is drawn downward until the bag rests on the upper portion of the abdomen and the lower portion of the chest. As the patient is pulled downward, the bag rolls upward, and pushes the intestines upward and forward, carrying the kidney with them, so that it is shoved up against the diaphragm; at the same time the breathing becomes entirely thoracic. Thus the kidney is compelled to follow the posterior curve of the diaphragm until it reaches the incision just below the twelfth rib, when, if it is freely movable, and not bound down by adhesions, it will emerge from the cavity and appear in the wound; or, by means of a little manipulation, it can easily be delivered and brought out through the wound, when it can be thoroughly examined.

This procedure proved most satisfactory in the case now before us. The kidney was easily delivered, but great was the disappointment when no stone could be discovered, either by ocular inspection, manipulation, or multiple puncture with the needle. I was so confident that a stone was present that I was unwilling to restore the kidney to its normal position without a most thorough examination, knowing that a calculus of small size might easily escape the most careful search, unless, indeed, the kidney was opened. Accordingly, an incision was made along the posterior border of the organ, large enough to admit of the entrance of the index-finger and allow me to examine the calyces. No stone could be found. During the incision into the substance of the kidney, an assistant grasped the pelvis, with the blood-vessels, between his index-finger and thumb, thus preventing the usual free bleeding which follows this procedure.

The wound in the kidney was packed with iodoform gauze, a drainage-tube was inserted, and the skin and muscles were closed by means of interrupted silkworm-gut sutures. The patient made a prompt and rapid recovery, and has had no reappearance of his troublesome symptoms since the operation. He is, as you see, to-day in perfect health.

The third patient upon whom I operated before the class two years ago was afflicted with a fistulous opening in the left lumbar region, which led to the kidney and through which all the urine eliminated by the organ on that side was discharged. The skin of the back was

excoriated, in consequence of being constantly bathed with urine. He was much below par, and was gradually losing health and strength.

Five years before coming under my care he was operated upon by the late Professor Agnew for a large perinephritic abscess, with stone in the left kidney. To empty the abscess properly, it became necessary to keep the drainage-tube *in situ* for a long period, and its removal was followed by a fistulous opening which refused to heal. Every surgeon by whom he was seen since the operation advised nephrectomy. I suggested an exploratory operation in order to examine the local condition, and to save the kidney, if possible. The patient consented, and the kidney was exposed in the usual manner. In the body of the organ a fistulous opening was discovered large enough to admit the index-finger, and a long tract was found extending down into the pelvis, being apparently the remains of the perinephritic abscess. The tract was scraped by a curette, and the cicatricial tissue surrounding the sinus in the kidney was cut away by means of a small bistoury. The wound was packed with iodoform gauze and dressed in the usual manner. To my surprise, it began gradually to granulate, and entirely closed in about three months. You will observe that it has remained closed ever since.

For two years the patient had been suffering with all the symptoms of stone in the right kidney. As you are aware, it is not very unusual for renal calculi to be found in both kidneys; but such was the individual's dread of having a similar experience with his right to that which he had undergone with his left side that he refused all surgical interference. Medical treatment had been fairly tried, but brought no relief.

When his left side healed up his confidence was restored, and he permitted me to make an exploratory nephrotomy on the right kidney. The organ was exposed by means of the Edebohls method, and the kidney structure incised so that a digital examination could be thoroughly made, but no stone was found. On convalescing, the pain from which the individual had suffered had completely disappeared; within the year he has gained forty-five pounds, and has enjoyed good health.

The last of this interesting group of cases to which I wish to call your attention is that of a young man upon whom I operated before the class one month ago, no stone being found. He was brought to me by Dr. Hirst of Camden, New Jersey. His history is briefly as follows:

He has never had any venereal disease; was in perfect health up to

two years since, when he began to suffer from attacks of pain in the right lumbar region. The pain would at times descend into the right groin and testicle; finally, he suffered from a constant pain in the back, especially on the right side, which was increased on exertion. When the pain descends to the testicle, that organ becomes markedly retracted, and there is attendant slight nausea. The urethra, bladder, and prostate were in a normal condition; the urine contained epithelial cells, with a slight amount of blood and corpuscles.

Since the operation he has gained in weight, and his pain has completely disappeared.

The questions naturally asked when discussing these four cases, where every symptom of stone existed, except the voiding of renal calculi, and where no stone was found on exploring the kidney, are, "What are the reasons for the patient's suffering, and why, after recovery from the operation, was there permanent and entire cessation of all the symptoms for which the operation was undertaken?"

The only way in which I can answer these queries is to offer you an explanation which has already been suggested. It has been surmised that probably the kidney, on the side affected, is somewhat more movable than it should be, yet to so slight an extent as to be of impossible detection by manipulation. By some means or other the kidney becomes slightly misplaced, and thus temporarily the ureter becomes bent upon itself, blocking up and preventing the onward flow of the urine; thus there is a distention of the pelvis of the kidney, which probably gives rise to the pain. The frequent distention of the pelvis with urine, owing to the blocking of the ureter, might in time light up a slight pyelitis, which would likewise account for the presence of epithelium, blood, albumen, and pus-corpuscles in the urine. The operative procedure necessary to examine the kidney is followed by more or less adhesive inflammation, and the formation of cicatricial tissue around the kidney, which tends to hold it in place, and thus prevents any further kinking of the ureter.

Many operators have had an experience similar to mine. Hence it should not be a subject of annoyance if the surgeon have a patient who presents all the symptoms of calculus in the kidney, and when the operation for nephrotomy is performed no stone is found; for experience seems to show that even if the stone is absent the symptoms calling for the operation will all disappear, and the patient will be restored to health.

The method of operation first described by Edebohls is recommended, not only because it permits of a better ocular and manual

examination of the kidney, but if it should be necessary to incise the organ it can be done without loss of any appreciable quantity of blood.

In conclusion, I offer this advice :

Never be satisfied that a stone is not present until you have had a chance to make an ocular inspection of the kidney. Very recently I assisted an operator in a case of this kind which has made a deep impression upon me. The patient had every symptom of stone in the kidney ; nephrotomy was performed by means of the old oblique incision ; multiple punctures by a needle were made, but no stone could be detected. The patient recovered from the operation and returned home. Six months later he again came under the surgeon's care, suffering from the same symptoms, but greatly intensified. The operator decided to expose the kidney once more, and endeavor to discover the cause of pain ; failing to do this, he had determined to remove the organ. The old wound was reopened ; manipulation and puncture by means of a needle were again resorted to, but no calculus could be detected. The wound was enlarged and the kidney separated from the adhesions, and made ready for ligation of the pedicle, preparatory to removal. On bringing the organ out of the wound and turning it over, a small stone was found at the under and lower border of the kidney in its substance. This was removed, and the patient made an excellent recovery.

In a paper recently read before the Medical Society of London, by Mr. Reginald Harrison, he reports three cases of his own and two of Newman's, of Glasgow, whose symptoms are somewhat similar to those recounted by me. In the first case the patient had suffered from an attack of scarlet fever three weeks previously. The symptoms were those of intense pain in the loin ; the urine contained albumen and pus. Nephrotomy was performed, expecting to find an abscess. The kidney structure was incised, and beyond great tension of the kidney nothing was found. The patient made a good recovery ; the albumen gradually and completely disappeared. The second case was one simulating pyelitis, following nephritis from exposure to cold and damp ; there was pain in the right lumbar region, and the urine was loaded with albumen. At the operation nothing was discovered beyond great kidney tension. The capsule of the organ was incised, and the patient made a rapid recovery, followed by a disappearance of all the morbid symptoms. In the third case the patient had passed a small calculus, and there was pain in the region of the left kidney, which, on palpation, was found to be swollen and tense. It was opened and explored ; no stone could be found ; after recovery the albumen completely dis-

appeared from the urine. Newman's two cases were examples of movable kidney, with kinking of the ureter leading to hydronephrosis; there were albuminuria and tube-casts in the urine; all of which completely disappeared after nephrotomy.

The cases reported by Newman are similar to those described by me, whilst in those that came under Mr. Harrison's care there was a form of albuminuria due to kidney tension, and they were relieved by seri-puncture.

In his paper upon the subject, Mr. Harrison calls attention to the fact that where albuminuria is due to renal tension, though both kidneys be similarly involved, it is only necessary to operate on one organ; the intimate sympathy that subsists between the two glands is such as to cause any impression made upon one to be reflected upon the other. As is well known, the secretion of urine being suspended or arrested in one gland, its work is speedily taken up by the other, which performs double duty, as it were.

A CASE OF PRIMARY TUBERCULOSIS OF THE BLADDER.

This case is of interest because primary tuberculosis of the bladder is extremely rare, though it is not unusual to meet with this disease secondary to a tubercular affection of the testicle, prostate gland, or kidney.

I request close attention to be paid to the history of the case, as it is very characteristic of this condition. The patient is thirty-one years of age, and is a clerk by occupation. He lost a brother and uncle from phthisis, otherwise the family history is negative. He has had three attacks of gonorrhœa, the last attack being contracted in January, 1896, leaving him with a slight gleet discharge and a tendency to frequent micturition. He consulted a physician, who told him he was suffering from stricture, and subjected him to gradual dilatation of the urethra by the use of bougies.

He became rapidly worse and began to experience pain about the middle of the penis, usually present when passing water. There were constant calls night and day to void his urine, the quantity passed at each effort being very small.

The stream of urine was frequently interrupted by the pain caused by the passing of the urine through the urethra. Occasionally a few drops of blood were passed at the end of urination. On one occasion it was quite profuse, bright red in color, and mixed with the urine. These attacks were intermittent. It frequently happened that many weeks would pass without any signs of blood being present. Pain

was sometimes experienced in the hypogastric region, which was relieved by urination.

These symptoms have been getting progressively worse, until at the present time the patient has an almost constant desire to pass water day and night, and suffers from pain in the glans and body of the penis. He is pale, emaciated, and weak, having lost fifty pounds within the last few months; the tongue is heavily coated, appetite poor, bowels costive. Upon admission to the hospital his temperature was 104° F. It varies between 99° and 104°; it usually stands at about 101°. Occasionally he has profuse night-sweats. The testicles and urethra are normal, the prostate gland is slightly enlarged and tender to the touch. The bladder is contracted, and cannot be made to hold more than three ounces of warm boric acid solution. The urine is neutral, specific gravity 1020; it contains one-half of one per cent. of urea and a slight amount of albumen, and is loaded with pus. On allowing the urine to stand, fully one-quarter of its volume is found to be pus and *débris*. A bacteriological examination shows the presence of a large number of the tubercle bacilli and pyogenic cocci. The patient is likewise suffering from polyuria, passing about forty ounces of urine in twenty-four hours. The other organs of the body are normal.

The history and physical examination of the patient point to primary tubercular cystitis as the disease under which he is laboring, and he is brought before you this morning in order to perform the operation of suprapubic cystotomy, hoping that by continually draining the bladder I shall be enabled to relieve the individual of the constant pain and frequent desire to urinate from which he suffers. I shall also be enabled to treat the viscus locally through the fistulous opening that will be established.

The patient having been placed under the influence of chloroform, the urethra and bladder are irrigated with a warm bichloride of mercury solution, care being taken not to make it stronger than one to twenty thousand. This irrigation, you observe, is continued until the liquid returns from the bladder perfectly clear, which shows that all pus has been washed out. A small pear-shaped rubber bag of ten-ounce capacity is now inserted in the rectum and slowly and gradually filled with warm water. The bladder is contracted, and is capable of holding not over three ounces of fluid. Only this quantity of a warm corrosive sublimate solution, of the strength already mentioned, is injected, and a rubber band fastened around the penis at the peno-scrotal junction, so as to prevent the liquid from escaping. An incision is now

made in the median line, beginning at the upper point of the pubic bone and extending upward for two and a half inches. The skin and superficial fascia having been divided, the sheaths of the recti muscles are brought into view and divided, and the linea alba between the two muscles is found and separated by means of the Allis dry dissector. The finger is now passed between the muscles, and comes in contact with the transversalis fascia, which is torn through by means of the finger, or it may be picked up with a pair of forceps and divided by use of the knife. This exposes the prevesical fat, which is pushed upward away from the pubic bone by means of the index-finger, when the top of the bladder is exposed. The wound is held open by means of retractors, and I now examine the wound so as to see that the peritoneum is well out of the way. A tenaculum is passed transversely to the muscular fibres of the bladder into the upper portion of the incision. The tenaculum is now handed to an assistant, who will make gentle traction so as to steady the organ, and lift it towards the wound, whilst I place the index-finger of my left hand on the top of the bladder, using it as a guide to the knife, which is in my right hand, and thus carry the instrument directly through the walls of the viscus, making an incision a little over a quarter of an inch in length. The walls of the bladder are now grasped on each side of the incision by means of a pair of hæmostatic forceps, and the tenaculum is removed.

On examining the organ through the incision by means of an electric light, I find that its walls are enormously thickened and contracted. There is a large ulcer on the anterior face extending towards the vertex, partially covered with shreds of membrane. I will proceed to scrape the ulcer with the curette and touch the raw surface with the galvanocautery. The bladder will now be irrigated with a warm bichloride solution; the rectal bag is emptied and removed, and a drainage-tube inserted into the wound as far as the base of the bladder and fastened to the skin by means of silkworm-gut sutures. Two other interrupted sutures are necessary so as completely to close the incision. The drainage-tube will be allowed to remain *in situ* for about ten days or two weeks, thus assuring the establishment of a permanent urinary fistula. The bladder will be irrigated twice daily with a warm boric acid solution. Twenty minims of a five-per-cent. solution of nuclein will be given hypodermically every day and such remedies administered as will have a tendency to increase the appetite and promote digestion. Should the night-sweats continue, camphoric acid will be administered at bedtime.

Perineal section for drainage in tubercular cystitis is sometimes

resorted to in preference to suprapubic cystotomy, but the perineal incision always becomes infected, a permanent fistula forms, and the urine constantly dribbles over the patient's buttocks and thighs, which it is much more difficult to keep clean than when a suprapubic incision is resorted to, and it is for this reason that I have chosen the latter operation on this case.

[This patient lived three months after the operation and finally died of exhaustion. The operation gave relief to the pain and frequency of micturition. Some weeks before his death the suprapubic wound became tubercular and grew much larger, so that by means of the electric light the diseased and contracted walls of the bladder could be observed without any difficulty.]

Gonorrhœa is often a predisposing cause of urinary tuberculosis. A knowledge of this fact should make one doubly careful when treating individuals suffering from a urethral inflammation who have a tubercular diathesis or a phthisical family history.

The employment of urethral instruments in tubercular cases is often injurious. In studying the history of the case before us you will observe that as soon as bougies were employed the patient became rapidly worse. Vesical tuberculosis is not always due to coition or venereal diseases, as has been already pointed out by Guyon and Fenwick.

I have had two other cases of primary tuberculosis under my care, both individuals being young, who had never indulged in sexual intercourse, and had no venereal history. Statistics seem to show that primary tuberculosis of the bladder is more common in the male than in the female.

You will observe that the symptoms of tuberculosis of the bladder closely simulate those of stone. It may aid the differential diagnosis to recollect that tuberculosis of the bladder, as a rule, is a disease of youth. In addition to a family history of phthisis, there exists an irritability of the bladder, from which the patient suffers continuously, together with the accession of a sudden and unexplained appearance of bright blood, which is neither increased by exercise nor checked by rest. The urine contains pus from the very outset of the disease, and tubercle bacilli shown by bacteriological examinations are present.

In rare instances of chronic primary tuberculosis of the bladder the mucous membrane gradually exfoliates, the inflammatory process gradually penetrating into the muscular coats of the organ. When these changes take place the walls become thickened and the bladder contracted. The process may end here and the patient recover, with the bladder hopelessly crippled. When this condition obtains, the urine

becomes clear, but, owing to the diminution of the capacity of the organ, the patient has repeated calls to pass water during the day and incontinence of urine during the night. For this condition there is no relief. I have met with several cases of this kind in young adults who suffered from chronic cystitis, arising without any known cause, leaving them in the condition described. In cases of this kind tuberculosis should always be suspected, and usually it will be found, on making inquiry, that there is a phthisical family history.

Hæmaturia is frequently relieved by sandal-wood oil and change of air. The hæmostatic drugs are, as a rule, of little service. In cases of uncontrollable hemorrhage of the bladder, permanent drainage by means of suprapubic cystotomy is often the only remedy that will give relief.

A CASE OF SUPPURATIVE GONORRHOEAL ARTHRITIS OF THE RIGHT KNEE-JOINT.

Suppurative gonorrhœal inflammation of a joint is very unusual. The case here presented is the first of the kind that I have met with.

The individual is twenty-three years of age ; a clerk ; family history negative. He contracted an acute anterior urethritis four weeks ago, for the relief of which he took capsules of cubebs and copaiba. Two weeks after the infection the posterior urethra became involved. A few days subsequently there was a feeling of malaise, with pain in several joints. This was followed by great pain and swelling in the right knee-joint, which became enormously distended ; fluctuation being present, attended with pain, œdema, and redness of the skin, the temperature reaching 104° F. The patient had one or two slight chills, and then the pain became throbbing. The temperature varied between 101° and 103° F. Always after a chill the temperature rose a degree or so, usually followed by profuse sweating. This condition has been going on for the past week.

You will observe that the knee-joint is at this time in the condition already described. It is enormously swollen, hot to the touch, the skin is red, and there is marked fluctuation. The chills, fever, and sweating would indicate that the patient is beginning to be pyæmic.

Whilst there is no doubt in my mind that this joint is filled with pus, yet before opening it I propose to insert an aspirating needle and draw off some of the fluid for ocular inspection. You will observe that the liquid in the aspirating bottle is sero-purulent. I shall now make an incision above the patella and one on each side, and will carry a drainage-tube directly through the joint, washing the cavity out with

a warm corrosive sublimate solution not stronger than one to five thousand, and applying to the limb a plaster-of-Paris splint, so arranged by means of brackets that the wound can be dressed daily. The joint will thus be placed at absolute rest. The drainage-tube will be removed as soon as the purulent discharge ceases.

The drainage-tube was removed on the fourth day. The wound healed within two weeks. The patient afterwards developed phlebitis of the femoral vein of the affected leg. He finally recovered under the use of passive motion and massage, with a partially movable joint. A bacteriological examination of the pus taken from the diseased knee failed to show the presence of either gonococci or tubercle bacilli. Up to the present time necessary proof has not been obtained from cultures that have been made, nor has a satisfactory demonstration been procured of the presence of the gonococci in the blood or lymph. Until this is done we shall be forced to look upon suppurative gonorrhœal arthritis as a mixed infection in which the urethra is the primary focus.

RHINOPLASTY WITH A FINGER; EPITHELIOMA OF THE ANGLE OF THE MOUTH; CASTRATION FOR CHRONIC HYPERTROPHY OF THE PROSTATE.

CLINICAL LECTURE DELIVERED AT THE METHODIST EPISCOPAL HOSPITAL.

BY JOSEPH P. TUNIS, A.B., M.D.,

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GENTLEMEN,—The first patient whom I will present to you is Mrs. E., aged fifty-nine. She is an English woman by birth, and for many years a native of Chester. Her family history is of negative interest. She had always enjoyed good health until the instrumental labor of her last child, which was still-born. She has five children now living and has had two miscarriages. Ten years ago she noticed a pimple-like mass on the right side of her nose towards the tip, which slowly increased in size until an ulcer formed. This ulcer was diagnosed as a cancer by several physicians who treated her. A great variety of internal medication was tried and every known local remedy, without avail, until about two years ago she consulted a cancer specialist on South Street. He applied a strong erosive salve for about two weeks and then removed the resulting scab. During this treatment she suffered great pain. With the removal of the last dressing, however, a mass was detached which, she says, contained numerous hair-like roots. Up to this time the ulcer had discharged constantly a quantity of foul-smelling matter. After the application of these plasters the ulcer commenced to heal and a cicatrix soon formed, which resulted in the deformity shown in Fig. 1. A large portion of the right wing of the nose had been eaten away and a small portion of the opposite side near the septum also, leaving an opening on the left side big enough to introduce a slate-pencil into the anterior nares. In order to cover these

unsightly openings she frequently spent twenty cents a week in plaster. She has been without the sense of smell for several years. Anxious to have her appearance improved, if possible, she finally came to this hospital and was referred to my ward. As the removal of a flap from her cheek big enough to cover these abnormal openings would have left a considerable scar on her face, almost equally disfiguring, I decided to make a flap from one of the fingers of her right hand. She readily consented to the loss of the ring-finger if her nose could be benefited.

Accordingly, on October 14, after a preliminary course of iodoform ointment to both nares for three days and thorough disinfection of the right ring-finger, ether was administered. The three phalanges of the ring-finger were then removed, together with the flexor and extensor tendons through an incision extending along the whole palmar surface. Every effort was made to preserve the digital arteries intact, so as to secure the best possible blood-supply for the flap in its new position. The nail was then cut away, with enough of the distal end of the finger to insure the certain removal of the matrix, and thus prevent the growth of a new nail in the transplanted finger, as has been reported. Any bleeding vessels were readily controlled by torsion, and the first step in the operation was soon completed. It then only remained to freshen the edges of the opening in the nose, which was done in such a way as to secure a surface a quarter of an inch wide all around the holes for contact with the finger flap. The latter was then fashioned to fit into its new position, the arm placed in an exaggerated Velpeau position, and silkworm-gut sutures applied to keep the parts in close apposition. The only difficulty encountered in applying the sutures was where the cheek came in contact with the flap. Here close apposition was rendered almost impossible by the angle at which the latter met the face. The second finger also interfered with the application of the stitches, and it seemed highly probable that a secondary operation would be required even if the first operation was successful. The ether was then withdrawn and the patient allowed to return to consciousness before any permanent dressing was applied to retain her arm and hand in position. She came out of the ether very quietly, and but little effort was required to restrain her first movements. Consciousness having been restored, a piece of bichloride gauze was spread over the nose as well as the adjoining finger and secured in place by a coating of iodoform and collodion. An antiseptic dressing was secured to the right hand and the dorsal surface of the split finger by a few turns of a gauze bandage. A small strip of iodo-

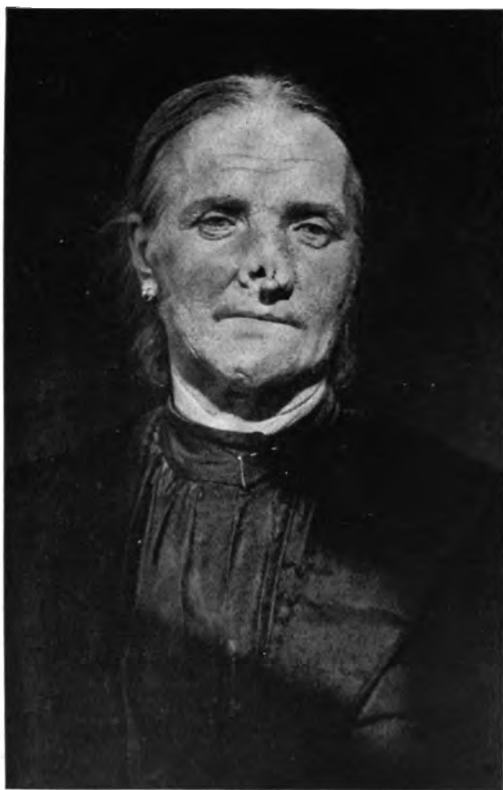


FIG. 1.—Deformity resulting after ulceration of the right ala of the nose.

form gauze was then placed in each nostril and a piece of lint over the right eye to protect it from contact with the index finger. A large pad of lint sprinkled with powdered boracic acid having been placed in the right axilla, the arm, forearm, head, neck, and chest were then swathed in cotton batting, and a number of plaster-of-Paris bandages applied to retain the arm in a fixed position. The head and neck were also included in the dressing. This dressing was renewed every ten days, and the patient experienced but little inconvenience from it. She was kept on the broad of her back for the better part of two weeks, as she was attacked with nausea at every attempt to prop her up in bed with pillows.

There was no suppuration in the wound, and healing occurred promptly. The appearance of the bandaged arm is well shown in Fig. 2, which was taken two weeks after the operation. The ring-finger is apparently flattened out on the face, but this effect is due to the collodion dressing, which obscured the detail in the photograph and prevented any outline of the finger flap being taken. At the end of three weeks Schleich's anæsthetic was injected into the stump of the ring-finger, and, all the dressings having been removed, amputation was effected at the junction of the middle with the lower third. By this time firm union had been established between the nose and the finger. Considerable bleeding occurred from the flap on the nose, and the latter was of a good color, showing that a satisfactory circulation had been established. All of the stitches were then removed, six in all, and union between the nose and the flap was found complete except where the wing of the nose joined the cheek. Here a small fissure existed. Schleich's anæsthetic was accordingly injected into the adjoining tissues subcutaneously, the edges freshened, and close apposition secured by two stitches of silk. An iodoform and collodion dressing was then applied to the nose and it was not disturbed for ten days. The edges of the stump remaining after the removal of the finger flap were brought together by three silkworm-gut sutures and the wound healed promptly. Only a small projection of skin and subcutaneous tissue now marks the site of the ring finger.

The convalescence of this patient has been uneventful, except for an unusual amount of nausea following the administration of the ether and an inability to pass her water voluntarily for several days. This latter condition was probably due to muscular relaxation of the walls of her bladder. Ever since the birth of her last child with instruments she has had considerable trouble with her bladder, and whenever her bowels are moved "something comes down." An examina-

tion of her perineum showed a severe tear, extending down to, but not through, the anus. There is an entire absence of the perineal centre and a well-developed rectocele.

Five weeks after the first operation I again gave her ether, and while my colleague, Dr. Richard C. Norris, was attending to her rectocele and torn perineum, I dissected up a small flap, a quarter of an inch wide and an inch and a half long, from the facial fold, running obliquely above the angle of the mouth, and carried it over to the small fissure referred to above, the edges of which had been again freshened for its reception. The flap so formed was held in place by two stitches of silk, and the whole covered with a collodion and iodoform dressing. The small denuded surface resulting was allowed to granulate over. The result of this rhinoplastic operation may be seen by reference to Fig. 3. The patient is well satisfied with her appearance and is anxious to return to England.

The transplanting of fingers, or parts of fingers, for the correction of deformities of the nose, has been performed by several operators. Dr. Thomas Sabine,¹ a number of years ago, used the whole of the middle finger of a patient to restore a nose which had been eaten away by lupus. The report further says, "To Dr. John Girdner, as house surgeon, fell the task of removing the finger-nail and trying to destroy the matrix. Several applications of fuming nitric acid were necessary. It was nearly *three months* before the circulation of the finger in its new situation would justify severing its connection with the hand, and then some trouble arose from necrosis of the end of the bone constituting the tip of the nose."

EPITHELIOMA OF THE ANGLE OF THE MOUTH.

CASE II.—Mr. F., aged seventy-three years, presented himself at this hospital four weeks ago with an unmistakable epithelioma of the angle of his mouth on the left side, extending a short distance on the lower lip and beyond the median line of the upper lip. There were numerous cauliflower-like excrescences, discharging constantly a quantity of intensely foul pus. He had noticed the ulcer several months ago, but had not paid much attention to it until the discharge became so offensive that living in the same house with him became almost unbearable. There was no family predisposition to cancer and apparently no exciting cause for this particular growth. He had always smoked a pipe, but never to excess. By occupation he had been

¹ Illust. Med. and Surg., New York, 1882, vol. i. p. 37, and The Medical Record, New York, January, 1896, p. 141.



FIG. 2.—Position of the arm and forearm after the application of the plaster-of-Paris bandage in a case of rhinoplasty with a finger.

a plumber. Before coming to the hospital our patient consulted a cancer specialist, who claimed to be able to remove such growths by the application of plasters under favorable circumstances. He was able to give a long list of patients, with their addresses, whom he had apparently cured. The epithelioma in this patient, however, did not succumb to the plasters, the application of which caused the most intense pain, and it was finally decided to resort to the use of the knife. Accordingly, two weeks ago, I removed all of the indurated tissue and ulcerating surfaces from both lips. This involved cutting away a considerable portion of the upper lip, all of the left angle, and a superficial part of the lower lip. The resulting wound, about five inches long, was sutured with silkworm gut, and the size of the mouth considerably decreased thereby. While the majority of the sutures held their position firmly, those at the angle of the mouth soon gave way, and I was obliged to freshen the edges, ten days later, under ether and resort to two hare-lip pins. These latter secured prompt union, and they were removed at the end of a week.

As you examine the patient now you see that there is a cranberry-like mass projecting from the upper lip, between the nose and the cheek. This has grown rapidly in the last few days, and promises to involve the entire face if it is not removed. Moreover, if you pass your fingers on either side of the scar on the lips left from the last operation you will feel in both a distinctly indurated mass. Already the discharges from the mouth are offensive and there is an unmistakable odor. It is a question whether we can benefit the patient very much, but he is anxious to have me make another attempt to eradicate the disease.

Now that he is well under ether I will cut away all of the indurated masses which can be felt around the old scar and cut deeply into healthy tissue. The cancerous tissue now extends well up on the cheek, and the incision has to be carried well up to the line of Stenson's duct. More than one-half of the upper and about one-third of the lower lip is now cut away, and the growth seems to be thoroughly removed. Unfortunately, the submaxillary lymphatic glands are involved, and can be distinctly seen and felt on the left side. On account of the patient's advanced age I will not prolong the operation by dissecting them out. It now remains to close the gap in the face which we have made. A plastic operation might be performed, either by taking a flap from the neck or one from the side of the face, and then twisting it into place with as little disturbance of the base of the flap as possible. I prefer to take a flap from the face, and accordingly

make two incisions, running parallel to each other and about three inches apart, extending from the lobe of the ear to the temporal ridge. Only the skin and subcutaneous tissue will be included in this flap. Having obtained this large piece of integument, very little manipulation serves to secure it in place, an incision having been made down the anterior portion, so that a part may be applied to the lower lip to supply the deficiency there, and the remaining and larger surface given to the upper lip. The slit between these two parts of the flap will correspond to the opening of the oral cavity. In order to have a skin surface next the alveoli, I will turn the end of the upper portion over so as to make it of double thickness there. As this turned-over part is farthest from the source of blood-supply, it will be the part most liable to fail to unite. There has been but little bleeding, which the hæmostatic forceps have readily controlled, and it has been necessary to apply only one or two ligatures. In order to cover the denuded surface left on his face, I will take two pieces of skin from the inside of his thigh, half an inch wide and five inches long. Now that they are in position, you see that the raw surface is almost completely covered, and it only remains to apply a good-sized antiseptic dressing to both wounds.

[NOTE.—The union of these flaps occurred promptly, and all the sutures were removed in a week. The extreme end of the upper portion of the flap, forming the centre of the upper lip, became gangrenous, and finally dropped off, leaving a small superficial opening in front of the incisor teeth. The grafts held their position and vitality well. In ten days the patient was able to leave the hospital, with some boracic acid ointment to dress the wounds on face and thigh. There was no odor from his mouth at this time or any sign of a recurrence of the cancer.]

CASTRATION FOR CHRONIC HYPERTROPHY OF THE PROSTATE.

CASE III.—Mr. A., aged seventy-eight years, was admitted to the surgical ward ten days ago with retention of urine. Every variety of catheter, from the filiform to the silver catheter with a large prostatic curve, was passed down his urethra, but none entered the cavity of the bladder. His scrotum was very much distended with a right-sided hydrocele, and when this was tapped more than a pint of fluid escaped. A rectal examination demonstrated an enormous hypertrophy of the prostate gland, which was enlarged to the size of an adult fist. The hypertrophy seemed to be symmetrical, and involved not only the lateral portions of the gland, but the central lobe as well. It was the



FIG. 3.—Result of rhinoplastic operation with the ring-finger of the right hand.

enlargement of this central portion which prevented the entrance of the catheter. The patient had suffered from several previous attacks of retention during the last ten years, each attack rendering catheterization by his family physician more and more difficult. Between these attacks he was frequently obliged to rise a dozen times at night to void urine. Meanwhile, no doubt, the prostate was progressively increasing in size. As we could not drain off the urine by the urethra, the patient was carefully prepared for a suprapubic tapping of the bladder. After strict antiseptic precautions had been taken, the skin in the median line just above the symphysis was sprayed with chloride of ethyl, and a trocar and canula plunged into the bladder. The urine escaped freely, —about a quart in all,—and the patient declared himself much relieved. An examination of the urine showed albumen, a low specific gravity, and numerous casts. The latter were both granular and epithelial, showing that there was an advanced nephritis present. The canula was allowed to remain in position so as to drain the urine off, until two days later, when it was found loose in the dressings. The strings with which it had been tied to strips of adhesive plaster stretched across the lower part of the abdomen, had not sufficed to maintain it in position. For the next twenty-four hours after the expulsion of the canula, he passed urine involuntarily by the urethra. Then there came another stoppage of the flow and great distention of the bladder. Castration under a local anæsthetic was advised, but the patient stoutly refused to consent to such an operation, so we resorted to tapping again. It did not seem safe to give him either chloroform or ether, on account of the atheromatous condition of his blood-vessels. The radial arteries, as you can see for yourselves, are as firm and inelastic as pipe-stems. Castration has been advised in cases of hypertrophy of the prostate in order to cause a shrinkage of that gland. Dr. J. William White¹ was the first to recommend this procedure, and he has already reported a large number of satisfactory results in this periodical.

As this patient has finally given his consent to a double castration, I bring him before you for that operation. His case is a most unfavorable one on account of the condition of his kidneys, and he has had two attacks of uræmia since he entered the ward. He has been given hot packs three times a day and a continuous course of salines. To stimulate his kidneys and heart, a cup of hot coffee has been given three times a day. At night he is always delirious, and twice his tem-

¹ INTERNATIONAL CLINICS, Vol. III., Sixth Series, October, 1896, p. 187.

perature has reached 104° F. In both attacks of hyperpyrexia the sweating resulting from the hot packs brought the temperature down about to the normal. I propose to perform this operation with Schleich's anæsthetic, using the stronger of the two solutions which he has recommended.¹

The first step in the operation will be to pass a ligature around the base of the scrotum. For this purpose we will employ this piece of drainage-tube. We can thus control the hemorrhage and reduce the amount of the local anæsthetic to a minimum. Injections are now made with a smoothly working hypodermic syringe along the line of incision over the cord. After waiting a few minutes for the anæsthetic to take effect, we will cut down on the cord, which can be easily located between the thumb and index-finger. After isolating the cord from its tunics, a silk ligature is passed around the entire mass, and the knife is passed directly through all the tissues below the ligature. The testicle and epididymis can now be readily removed. As the tunica vaginalis is very much thickened on this side, we will remove it also. As an additional precaution against secondary hemorrhage, we will isolate the spermatic artery, the cremasteric artery, and the pampiniform plexus of veins, so that they may be ligated separately. The artery of the vas deferens will have to be tied with that tube. The walls of the vas deferens are thickened and rigid. The ligature around the cord may be removed at the end of twenty-four hours. The cavity left in the scrotum will be packed lightly with iodoform gauze, and enough sutures used to close the wound, except at the upper part, where a provisional suture will be applied, to be used in closing the wound completely after the removal of the ligature around the entire cord. We will now repeat this procedure on the opposite side, and, as there is no thickening of the tunica vaginalis there, the operation is more easily performed.

[On the following day the same "prostatic catheter," which had previously been employed without avail, was passed into the bladder and several ounces of turbid urine removed. Each subsequent passage of the catheter was easily accomplished, and was performed regularly twice a day. At these catheterizations the bladder was washed out with warm boracic acid solution. Between these washings the patient voided urine frequently, sometimes involuntarily, and often five or six ounces at a time. A vesical fistula, which had formed along the track of the canula in the linea alba above the symphysis, also discharged

¹ INTERNATIONAL CLINICS, Vol. II., Fifth Series, July, 1895, p. 177.

a considerable quantity of urine, but it was impossible to tell just how much. The patient declared that he had felt no pain during the operation, nor did he complain of any subsequently. His condition was fair for three days, when the uræmic symptoms developed again, and he sank rapidly into a comatose condition from which he never rallied. He died six days after the operation. A post-mortem examination of the prostate showed that it was enormously hypertrophied, and that the overgrowth was symmetrical, as had been diagnosed during life through the rectum. The kidneys showed chronic interstitial nephritis and an acute inflammation of the pelvis of each.]

ONE OF THE RESULTS OF COLOTOMY.

CLINICAL LECTURE DELIVERED AT THE KENTUCKY SCHOOL OF MEDICINE
HOSPITAL.

BY JOSEPH M. MATHEWS, M.D.,

Professor of Surgery and Clinical Lecturer on Diseases of the Rectum in the Kentucky School of Medicine, etc., Louisville, Kentucky.

GENTLEMEN,—The patient before you is a female, aged thirty-six years, upon whom a colotomy was performed six years ago, by a physician in this community, under the idea that she had a carcinoma of the rectum. The diagnosis was so made. She now comes to us for treatment because of the fact that the colotomy opening has become so small that evacuation of the feces is impossible, or nearly so. In a previous lecture I tried to show you the conditions that call for a colotomy, and also how to perform the operation when indicated. The case before us should be classed under the head of the results of colotomy, from the fact that the orifice has closed or contracted so thoroughly that it will scarcely admit the point of a pencil or the tip of the finger. Now she is brought here because of her inability to have an action of the bowels through the colotomy wound. What are we going to do in such a case? I want to impress upon you, if you ever do a colotomy with the idea that afterwards you will close the opening, if you are under the impression that the closure of an artificial anus is a simple operation, you will find it one of the most difficult operations in surgery. Add to this the fact that it has been a very unsuccessful operation; of course, it has been done successfully, but the vast majority of cases operated upon up to a few years ago resulted in failure.

Now, in this case we have another condition to deal with: there has been almost entire closure of the colotomy wound by contraction, and, if something is not done, there will eventually be complete closure. We must do something to allow this woman to have a discharge of feces from the artificial anus. Inasmuch as her doctor thought it was necessary to do a colotomy because the gut was completely blocked,

then, we shall attempt to open the colon, or, rather, reopen it. Several attempts have been made to do this by other physicians, I am told, but little or no benefit has been derived.

It will naturally occur to you to ask one or two questions. One is, Do colotomies often close in this way? I have never seen a case of the kind before; it is a peculiar condition that I have never witnessed. Now you can understand that it is a dangerous procedure to go into this wound; you understand the technique of a colotomy where you bring the gut up out of the wound and stitch it to the true skin, having an opening above and below; and now the opening having closed, you can see that there are a great number of adhesions around this colotomy site, and, if you are not extremely careful in opening it, you will cut into the peritoneal cavity, which might be fatal to this woman, consequently, the only thing we can attempt to do is to dilate the opening. It is closed as far as the true skin is concerned, therefore we will try to go into the lower opening by first making an incision very carefully so as not to cut into the peritoneal cavity; then dilate the orifice, because, as already indicated, cutting here is a very dangerous procedure.

This is *one* of the results of a colotomy. Another may be that you might have the gut protruding at times; enormous prolapse has been known to occur, which necessitates careful reduction, the gut comes out upon the slightest effort, etc. Now you would ask again, What should we do to prevent such conditions arising? I tried to explain in my last didactic lecture the various methods as practised by the different operators in doing a colotomy. I have come to the same conclusion as expressed by Mr. Allingham as far as the operation of colotomy is concerned, who, I think, makes the best suggestion to overcome these difficulties, which sometimes result after doing the operation. You can see in this case that no distinct spur was made; you can look at the condition of affairs and see that, although perhaps an attempt was made, it was futile, and that is the great point in doing the operation, both in lumbar and inguinal colotomy, to have a good spur. Therefore I detailed to you that Cripps brings up the gut and simply attaches the wound made in it to the true skin. Mr. Allingham objects to this plan because there is no good spur, and thinks one should be made by elevating the gut and passing a ligature through the mesentery. Each method, however, has for its object the accomplishment of the same result. Another method, hoping to accomplish the same result, is mentioned under the head of colotomy in Dr. Senn's last book, where he brings the colon out and stitches the sides of the gut together, and then

opens the gut. You can very well see that feces coming down from above would go upward instead of going across into the other opening, as often happens, I am sure, in Cripps's operation. Then we are to conclude that in doing this operation you must have in your mind not only whether it is going to benefit the patient as far as the operation *per se* is concerned, but whether you are going to meet with any of these objectionable features afterwards. It is bad enough at the best to have a good colotomy done, and I have seen in past times some bad results as far as the operation itself was concerned, when performed, too, according to the most modern methods. Therefore I would advise, in these operations, if you would follow any special method, that you must at least make a good spur, and I believe it is best accomplished by leaving the colon out and getting under it, as I have sometimes done with two pins instead of a ligature, because they are so easily taken out afterwards, and the thread is sometimes very difficult to get loose so as to take it out. Then, again, the colon is held in better position by means of the pins than it can be by any other means. In doing the operation you should always have this in mind, as it is of considerable importance.

As you know, I have already spent two hours in discussing colotomy in a didactic way, but I feel there is yet a great deal of value to be said. There are two colotomies. One of them is nearly obsolete in the United States, it is true, and I will go further than that, and say the consensus of opinion of the world is in favor of the inguinal operation. I am forced to admit it, but I still maintain that there are cases which may present to you in your practice where the lumbar is to be preferred to the inguinal operation, and this point I fully demonstrated in a previous lecture. I am sure if I were to submit the matter to this intelligent class to-day without giving any specific details, and ask if you could imagine a condition where a lumbar colotomy would be preferable to the inguinal operation, if you would give the matter mature thought you would say, without fear of contradiction, that in all cases of cancer where the growth is located in the *sigmoid flexure*, involving the descending colon, it is best, at least if you are going to make an opening, to make it as far distant from the growth as is possible. Would this not be the most rational procedure? In other words, if the malignant growth involves the sigmoid flexure and lower part of the descending colon, if you were to do an inguinal colotomy which would be contiguous to the growth, do you not say that the cancer might be embraced in your incision? Do you not say that the pathological change in the structure is such that you cannot hope for the

result that might be obtained if you were to go farther away in the colon? How are you going to get farther away? Why, by going in the lumbar region, far distant from the cancerous disease. In this way you do not run the risk of its being embraced in the incision or by infiltration. You are not going into the pathological condition or into infiltrated tissues, the structures that surround the cancer, if you do a lumbar colotomy, that you would in doing an inguinal colotomy. It has been urged that inguinal colotomy is so much simpler than the lumbar operation, and therefore it should be done. There is a strong point to be made against this. Is the surgeon who professes to know his business as an operator to take refuge behind such an excuse as this? Because one operation is simpler and easier, that he will do that operation? Why, if he is a surgeon he must know how to do all operations. If he is to attempt to do a colotomy he must be familiar with the inguinal as well as the lumbar method, and *vice versa*. If there is an anatomical or pathological reason why the lumbar operation should be done instead of the inguinal, it is his fault if he does not do it; it is his fault if he does not know how, and he would certainly be neglecting his duty if he did not perform the operation indicated when he will admit the necessity of doing another.

I believe in practice you will find cases where it will be necessary for you to perform a lumbar in lieu of the inguinal operation, which has been done in this case. I have not yet examined the rectum of this woman. I am quite sure the diagnosis was incorrectly made, and that there is not a malignant growth of the rectum, because it is six years since the colotomy was done and the woman is in about as good condition as she was then. Now there is but one other condition which would establish such changes in the rectum as would require the operation of colotomy, and that is syphilis. Consequently this woman evidently has syphilis of the rectum. Therefore you can understand from this case the ravages which syphilis may entail. It may block up the entirety of the rectum, including the sigmoid flexure, with a gummatous deposit, so much so that the patient cannot have an evacuation. Now I want to say this to you. If I have said it before, I want to reiterate it. Time and again you will find syphilis of the rectum where you will not find evidences of it anywhere else in the body. Syphilis, as I have so often said, is a remarkable disease. A man may have syphilis of the scalp without evidences of the disease elsewhere; it may attack the skin; it may attack the throat; it may attack the rectum. It is no reason, because you cannot trace the clinical history, that you are to rule out syphilis of the rectum.

The patient has been anæsthetized, and by an examination of the wound we find there is no spur at all and the opening is contracted inward. We naturally have adhesions all the way around this gut. It is very close to the peritoneal cavity, consequently we shall have to be very careful; we can only dilate the opening in the gut, being careful in making an incision through the skin to enlarge the external opening. I make my incision down below the original opening, and then with my finger accomplish sufficient dilatation. You will see my finger enters with some difficulty into the colon above; I break down the adhesions so as to get my finger well into the opening below. Now, gentlemen, we have an incision about the length of the original colotomy, and I do not think I have injured the peritoneum. I find that the lower portion will not admit my finger freely except through the opening I have made with the knife. The gut is very much thickened and contracted above. I would much prefer to do the original operation of colotomy than to fool with one after it has been done. There is no chance now to bring up the gut and make a spur, and the only thing left for us to do is to keep the opening well dilated.

I will now introduce my finger into the rectum and examine the condition there, which, as before stated, I have not done previously. She has been passing some little fecal matter continually through the rectum, larger quantities since the colotomy has closed. There is nearly total closure of the bowel by a stricture, which is located about two inches above the anus. I cannot push my finger through it; if I could we would undoubtedly find this deposit extending five or six inches above, extending to and perhaps embracing the sigmoid flexure. That it is syphilitic is unquestionable, and I have no doubt the history could be traced back to constitutional syphilis.

Now, gentlemen, you are going to ask, If you encounter a case of syphilis of the rectum in your private practice, what are you going to do about it? Is there not some method of treatment, some cure to prevent these people from going on to that melancholy condition which requires colotomy, a disgusting operation like this? Or is it curable, or can it be materially benefited? Before I answer either question I want to say this: In the first place, syphilis in the rectum gives very little evidence of its existence until closure by stricture has taken place, and after that it is just as incurable as cancer. I have made that assertion so often and have been so persistent in claiming that it is true that I want to ask you when you go into the practice of medicine, if you find a stricture of the rectum resulting from syphilis, that has extended

to any degree, if this condition is cured I will be under many obligations if you will write me a letter and tell me so. I do not believe there is such a case on record. You understand my proposition, that where there is a stricture of the rectum resulting from syphilitic deposit it is just as incurable as cancer. But you will say when you have a case of syphilis of the rectum which comes under your observation before cicatrices result, when it consists of an inflammatory process, such as an ulceration, etc., in that stage is it not possible to cure syphilis of the rectum and prevent its ending in stricture? In the first place, I would ask the syphilographer whether constitutional syphilis, when it has extended to this degree, is curable as a disease or not? Perhaps it is, but it is very rare. But in this condition of fibrous stricture this deposition of gummatous material, if stricture occurs, can be remedied only by being reabsorbed. Can nature absorb such a material as that? It is impossible, and it goes on constantly increasing, the patient becoming gradually in a worse condition. Now, I grant you that if you have the beginning of syphilis, or syphilis in its incipency, and you see the patient, it would be the merest accident if he came to you for an examination, but if you can trace the clinical history and find ulceration in the rectum that you believe to be syphilitic without the formation of stricture, I see no reason why under strict discipline and medication the stricture may not be prevented,—in other words, I think that the ulceration may be cured. How are you going to do it? Not by local treatment, because it is a constitutional disease, and therefore you can rely only upon putting the patient upon antisiphilitic medication and keeping him upon it. Now, I beg of you not to treat syphilis in any haphazard manner; too many of us do. Put the patient upon the different forms of mercury and iodide of potassium, and say, "You must take this three times a day, this twice a day," or whatever the directions may be, but do not forget to say to the patient that you must see him for one, two, or three years, that you cannot discharge him as cured under three years. You must impress him with the importance of this matter. Therefore keep him uninterruptedly the subject of your direction, under antisiphilitic medication for its effect. What do we mean by that? Some persons are able to take one hundred and fifty grains of the iodide of potassium at a dose; other patients have an idiosyncrasy to iodide of potassium, and it is impossible for them to take it continuously for one week, but you can bring them under the effect of the iodide by small doses if they have that idiosyncrasy. Therefore it is for its effect. It may take one-hundred-grain doses to affect one person, rather to bring

him under the effect that you desire to produce, while the other man will require ten grains. Now, you say, if you were to give these enormous doses in cases like this, because iodide of potassium is the remedy *par excellence*, it is the *sine qua non* treatment for this condition; if he requires large doses, smaller ones are not going to do him any good, because you do not get the effect. There is one important thing to be remembered in giving iodide of potassium,—that is, it should be thoroughly diluted with water. If you are going to give a patient ten grains, give it in a glass of water. Make the man a water-drinker, and if you find it necessary to increase the iodide to fifty, sixty, seventy-five, or a hundred grains three times a day, and it disagrees with the stomach, give it in milk. This question will often come up in your private practice. You may have under your observation the very best man or woman in your community with syphilis. You cannot go out and proclaim it upon the house-top, but you want to do the very best for the man or woman that you possibly can. I saw yesterday a most excellent little married woman, as pure and good as any one, that three weeks ago suffered with a chancre and a bubo. Take such a case as that; you want to do the best you can for this patient. If you can keep her under observation and she will follow your directions, all well and good. If you cannot do this, you must select some other method for getting the benefit of the treatment. Whatever is to be done must be done at once; you cannot delay the treatment of syphilis. Therefore it will be asked time and again, as it is asked of all of us, Is it the proper thing to send a patient of this character to Hot Springs, Arkansas? I do not suppose there is a doctor in this country who is not asked this question at least twenty times a year. People have gotten hold of it that there is some specific substance down there that eradicates syphilis. If you have never been to Hot Springs perhaps it may be well to say that you see there the rich man and woman, as well as the courtesan, the banker, the merchant, and all other classes and kinds of people, all for the same purpose,—to be treated for syphilis. I do not believe there is any specific property in the water; I do not believe there is anything in the water that cures syphilis, but there is something there that enables the intelligent physician to increase the amount of iodide of potassium necessary to meet the indications of the case that you cannot do in any other climate. Whether it is in the baths, the sweating process, the atmosphere, the drinking of the water, or what not, you will find that your patient will take at Hot Springs one hundred and fifty grains of the iodide of potassium three times a day without any ill effect, when he could not

take in his own home possibly twenty-five grains. I have tried it time and again. Upon the idea that you are to benefit these people and to do it rapidly, it may be necessary to send your patients to Hot Springs. I feel it my duty, however, as a doctor, and for the benefit of the intelligent class of people that will fall under your observation, to say that the city is full of quacks and charlatans. Many patients have gotten into the hands of these rascals and been injured. Therefore it behooves you to become acquainted with the reputable profession there in order to know to whom to recommend your patients for proper treatment. I am glad to say there are not a few most excellent doctors in Hot Springs, and you should find out who they are and be sure that your patients fall into their hands. It is estimated that forty thousand people visit these springs each year, and out of this number it is safe to say that the majority go for the purpose of being treated for syphilis.

OPERATION FOR HARE-LIP; INGROWING TOE-NAIL; BUNION; EPIDIDYMITIS.

CLINICAL LECTURE DELIVERED AT THE HOSPITAL COLLEGE OF MEDICINE.

BY H. HORACE GRANT, M.D.,

**Professor of the Principles and Practice of Surgery and Clinical Surgery in the
Hospital College of Medicine, etc., Louisville, Kentucky.**

GENTLEMEN,—This patient, a male, aged eighteen years, has been before you on two previous occasions. He was operated upon for double hare-lip two weeks ago, and was presented to you the following week to illustrate the progress of the case. My object in bringing him before you to-day is to show you the result, and to speak of a few points concerning the operation which was performed upon him.

You will remember that the deformity was very great, giving him an exceedingly unsightly appearance. We removed a portion of the vomer, doing the usual operation for hare-lip, and while it will require a subsequent plastic operation to give this man a perfect lip, still the result already is far more satisfactory than we hoped to accomplish. The wound we made was quite large, and you will observe that healing has taken place throughout its entire surface. At one point it showed a little black sloughing spot, owing probably to tension of the sutures, which could not be avoided. You will observe there is a line of union over an inch and a half in length upon each side, and you can also see the upper and lower angle of the original wounds. You will remember that in doing this operation we first took a V-shaped piece out of the cartilage and bone of the vomer and drew down the nose in suturing the cut surface. We separated the mucous membrane from the alveolar border well away from the gaps in the lip. The edges were then fastened after the manner suggested by Malgaigne, reserving the slips to complete the deficiency in the lip.

Another reason for again presenting this patient is to demonstrate the imperfect condition of the lip during the stage of repair, that you may not feel discouraged after you have done an operation of this

nature if the result is not perfect, and it is necessary to perform a secondary plastic operation. In the case before you it will be necessary later to do another slight plastic operation, to insure an absolutely perfect result. In this connection I will say that the patient upon whom we operated for a similar condition some months ago now presents a perfect result; there is complete restoration of the lip.

I have had occasion to operate upon several cases of hare-lip before you, and every one has been wonderfully improved. As you know, it is very frequently the case that patients with hare-lip also have cleft palate, requiring in some cases an operation for this defect also. We have succeeded in getting complete union over the entire surface that was refreshed in the case before us, and if no further operative steps were carried out, the condition is very greatly improved. He suffered little pain, and has had practically no inconvenience from the operation. The most noticeable improvement is observed in the condition of his nose. Notice the difference in distance from the lip to the tip of the nose; the result is that there is a great improvement in the facial expression of this man in every way. It is also a matter of some congratulation that the central portion of his lip shows a tendency to produce hair, and it is quite likely that his moustache will completely cover any deformity that may be left after the operation is completed.

No other dressing is necessary after these operations except simple protection of the parts. Healing progresses usually in a satisfactory manner; there should be no suppuration, and the wound does not require dressing oftener than once every other day. We will present this man again at the end of another week, and we hope by that time that all this denuded surface will be firmly cicatrized. Then after a few more weeks have elapsed, we will do whatever may be necessary in order to effect a perfect contour of his lip.

CASE II.—The next case is a young man, aged sixteen years, who presents a condition which is not only exceedingly common, but which is not always very easy of repair, viz.,—ingrowing toe-nail.

The treatment of ingrowing toe-nail is a subject of considerable interest, and I am glad to have an opportunity to demonstrate to you the methods whereby relief may be obtained. It is an exceedingly painful affection; it is one which requires thorough operative steps in order to accomplish repair. This boy presents an hypertrophy of the tissues upon the outer side of the nail. The outer side of the toe is greatly thickened, and not only ulcerated but inflamed in the most painful manner. The nervous structures distributed to this portion of

the toe make it an exceedingly sensitive part of the body. You know that the tactile sensation of the fingers is of the very highest order that is found in the human anatomy. The toe in a measure is a counterpart of the finger and represents also a very highly sensitive condition, and inflammations or ulcerations at the border of the nail constitute a condition which is extremely painful. Ingrowing toe-nail is a chronic inflammation which is constantly kept up by pressure of the nail upon the skin, which is accompanied after a certain length of time by ulceration; and as I glance at this boy's toe, I see there is a condition of ulceration complicating the inflammation.

The treatment of a condition of this kind is complete removal of the source of irritation, but this is not enough: in order to prevent a recurrence of the condition it is necessary to take away the hypertrophied skin and underlying tissues. Not only is the nail structure removed and the source of irritation and ulceration thus taken away, but the structures which have been inflamed and which would constitute a favorable spot for the re-establishment of the ulceration when the nail again grows, must also be removed. The nail becomes thickened and the tissues become hypertrophied and override the ingrown nail, all of which must be taken away. First the nail is divided completely through the middle and that portion on the affected side is carefully removed. One-quarter, one-third, or even one-half of the nail may be taken away, and if it be doubly ingrown the whole nail has to be removed. After the nail is taken away, the hypertrophied tissue which sticks out twice or three times as much as normal, should be sliced off. A thin tenotomy knife is passed directly through the hypertrophied tissue at the matrix of the nail and carried out at the free end of it, which divides this hypertrophied tissue completely through, then with a pair of scissors it should be trimmed away. Contraction of the tissue, the escape of fluid, and the absorption of the inflammatory deposits will not only bring about complete repair, but leave no place for a recurrence of the ingrowing nail or reproduction of the ulceration.

One or two other operations have been suggested for the relief of ingrowing toe-nails, but they are far less reliable. There is nothing more to be done except what nature will do, after taking the steps I have suggested. It is a very simple method, a satisfactory and effective one, and I not only recommend it to you, but urge that you do nothing else than the steps I have outlined when you are called to operate for an ingrowing toe-nail. As it is a very painful affection, and occurs in an exceedingly tender portion of the body, the operation

should be done always under complete anæsthesia, or after the hypodermic injection of cocaine. I prefer in all such cases to operate under an anæsthetic; however, if a ligature is thrown around the toe close up to the foot, so as to prevent the admission of cocaine into the general circulation, enough may be injected into the parts to enable you to trim away the hypertrophied tissue satisfactorily. But in following out this procedure, you will find it necessary to use a liberal amount of cocaine; if only a small quantity is injected, the patient will jerk,—and if a woman she will scream,—and very likely prevent the completion of the operation. It is best in every case where you are going to operate for ingrowing toe-nail to administer a general anæsthetic, although it looks like a small operation to be coupled with the risk of general anæsthesia, yet, I question if the security after the administration of cocaine is even as great as that of chloroform. In other words, all things being equal, I believe I would rather take chloroform to complete anæsthesia than to have cocaine injected hypodermically in a quantity sufficient to produce complete local anæsthesia of this exceedingly tender region. In circumcision I have no difficulty in performing the operation under cocaine, but in a few cases where an operation has been attempted for the relief of ingrowing toe-nail I have had considerable trouble. In one instance where I used cocaine, in a quantity that I thought sufficient to completely obtund sensation, I not only found that sensation was not completely obtunded, but the patient had symptoms of general poisoning from the cocaine which made things assume a very unpleasant aspect for a short time, not only for the patient but also for the operator. For this reason I confidently say to you that cocaine will not produce thorough local anæsthesia about an ingrown toe-nail in anything except full toxic doses, and full doses of cocaine are in my judgment always attended with more or less risk.

CASE III.—This man, aged about fifty years, has a bunion situated upon the little toe. You can see quite an extensive thickening over the toe, and the inflammation evidently involves the joint. Slight pressure upon the enlargement gives him intense pain. This is the history of a bunion, not only is it likely to be painful in damp weather when the patient moves about, but even if he does not walk or exert pressure upon the affected foot. Bunions are more common at the articulation of the great toe, but we occasionally see them upon the little toe, as in this case. A bunion is a thickening of the bursal membrane—the bursa which overlies the joint. In a certain proportion of cases this bunion communicates by an extensive inflammatory deposit with the

joint itself, but in many instances it is simply an inflammation of the bursa. Of course this inflammation varies in degree: sometimes it is merely an irritation produced by a tight shoe; at other times it not only constitutes an inflammation of considerable magnitude, but also entails a dislocation of the joint itself, and the toe, instead of occupying its normal position, is dislocated so as to overlie or override its fellow. In this instance there is, as you see, more or less deformity of the little toe, it being pushed up under the toe next to it. You will notice there is also considerable thickening of the skin over the joint, and it is probable that there is a condition of partial dislocation. This dislocation is due to a secondary inflammatory deposit in the joint, which finally produces a genuine pathological dislocation. This dislocation, when it becomes of a sufficient amount to constitute a deformity that is greatly in the way of wearing a shoe, requires some operative steps. In this case there does not seem to be enough trouble to require it. Possibly a portion of the pain from which this man suffers is due to pressure upon the thickened skin itself. It would be a good idea for him to wear a shoe so formed as to prevent pressure upon this tender spot, either by cutting a hole in his shoe, and in this way relieving the pressure, or else by having a shoe sufficiently wide to relieve it.

The operative treatment indicated in bunion is, in my judgment, the only step that is of real value, aside from the relief of pressure, as I have outlined. When the bunion is sufficiently troublesome to have produced dislocation and to give the patient constant pain on attempts at locomotion, operative measures are demanded. The best procedure is to make a free incision over the bunion, dissect out the enlargement, then resect the head of the bone. The head of the metatarsal bone, rather than the head of the first phalanx, should be cut off. This head of the bone being removed, reduction of the dislocation is readily effected. The toe is then pressed back into shape, and the result is that an inflammation, aseptic in character, takes place; this inflammation practically fixes the joint. There is more or less permanent and complete ankylosis of the joint afterwards. This, however, is but little in the way of locomotion subsequently; and the fact of this ankylosis taking place prevents a recurrence of the dislocation and the development of a new bunion. The incision, in the way I have usually done this operation, is made directly over the joint, and the head of the metatarsal bone cut out; then the dislocation is reduced, and the toe is turned outward so as to even exaggerate or over-correct the deformity; then the toe is held in this position upon a straight splint until union has taken place, which is usually after about three weeks. If the operation is carefully

done under aseptic and antiseptic precautions, no after-trouble results. If, however, infection should occur, troublesome results are to be expected, and the process of healing may be rendered very slow. If the skin is thoroughly cleansed, and the instruments employed are aseptic, and the subsequent conduct of the case properly managed, no suppuration is to be anticipated, and satisfactory union will be obtained. The result is always a cure of the bunion. I have never done this operation upon the little toe, never having seen the condition sufficiently aggravated to demand it there; but should the bunion become exceedingly troublesome in this situation, I would rather advise amputation of the toe; the little toe having so little to do with locomotion and the strength of the foot, I should recommend that it be completely removed rather than have a resection performed, as is done with the great toe. In the case before us there is really little or nothing to be done with this bunion except to advise this man to so adjust his shoe as to remove all pressure from it. The weather is now moderate enough to enable him to make an opening in his shoe, so as to prevent pressure upon the bunion, and for the present I think nothing else will be necessary so far as the bunion is concerned. I believe it would be advisable, however, to remove the callous tissue which overlies the joint; the thickening is such that it presents a corn of considerable size, and the treatment he requires for this condition would perhaps be more satisfactorily given by a "corn-doctor" than in this clinic. The callus can be easily removed, which would add greatly to the comfort of the patient.

CASE IV.—This boy, aged nineteen years, has an epididymitis of gonorrhoeal origin. These cases are exceedingly interesting and instructive. You see here the testicle between my thumb and finger, and above the epididymis can be plainly made out. The testicle proper is not tender, but the epididymis, which I now take between my thumb and finger, is exceedingly sensitive. The epididymis on the opposite side is unaffected. It is a peculiar fact that when the testicle begins to be affected in this way the discharge from the urethra, in the majority of cases, greatly diminishes, sometimes completely ceasing, so much so that the patient will come to you with the information that he is cured of the gonorrhoea, but has a swollen testicle. In this case the urethral discharge has very much diminished, but has not entirely ceased, enough to show you that infection has been communicated from the urethra to the testicle. This is due to direct infection; in some way the micro-organisms, whatever they are, have gotten into the testicle, and we have a gonorrhoeal infection of

the testicle itself, or, rather, of the epididymis. At any rate, there is present a septic infection due to gonorrhœa as a predisposing cause. Whether the micro-organism is to be found in the epididymis or not cannot be positively stated, but the fact is that this character of epididymitis is exceedingly common after gonorrhœal infection, although it is true that sympathetic inflammation of the testicle not uncommonly results after wounds of the urethra, after stricture of the urethra, septic inflammatory trouble such as is seen after gonorrhœa extends to direct tissues in septic processes which have extended through the vas deferens to the testicle. Exactly how a condition of this kind can occur without gonorrhœal cystitis, without infection of the ducts of the prostatic portion of the urethra or the vesiculæ seminales,—how this can occur without there first being an irritation, can be explained only upon the ground that they are in a measure proof against it, and are less liable to infection than the epididymis, though these complications are frequent enough. At any rate, epididymitis is exceedingly likely to occur with gonorrhœa, and also in many instances without the above-named complications.

The treatment of this condition is to support the testicle by means of a suspensory bandage, and the local application of an ointment of belladonna and opium, a drachm each of belladonna and opium to an ounce of simple ointment. The frequent local application of this ointment, with the support of the testicle and with rest in the recumbent posture, constitutes the most satisfactory means of treatment for gonorrhœal epididymitis. This patient is likely to have more severe pain within the next twenty-four or thirty-six hours; sometimes the swelling is so great that the distention of the tunica vaginalis requires relief, and puncture of the tunic with a very narrow-bladed bistoury is recommended by some surgeons. It has never appeared to me to be necessary to do this. I have occasionally contemplated it, but in the majority of cases the swelling is moderate; and in those cases where I have thought, perhaps, it was proper, the patient has either hesitated to have it done, or has preferred to wait for twenty-four hours, by which time relief was obtained in other ways. Where pain is severe enough to demand the application of a poultice, it is claimed that the infusion of tobacco makes an excellent application. I have frequently known of this being applied as a domestic remedy. This means has never been employed under my own direction, but it has been applied in patients who have consulted me many times. The administration of opium, especially the combination of opium and belladonna, has seemed to me the most efficient means of controlling

gonorrhœal epididymitis. The use of all treatment directed to the gonorrhœal trouble is to be abandoned. Injections and the use of any of the balsams, if they have been employed, are to be suspended until the epididymitis has practically declined to more or less complete recovery. This complete recovery, of course, is delayed a considerable time if the epididymitis has been a severe one. The pain usually declines in three or four days, and after a week the treatment for the gonorrhœa can generally be resumed. Induration and perhaps tenderness upon manipulation of the testicle will remain a longer time, the induration rarely disappearing before three or four weeks, and sometimes even longer. As pain subsides it is well to use a more stimulating ointment to the induration. This ointment I usually have employed in the form of the oleate of mercury one drachm to the ounce of simple ointment. This is to be rubbed over the surface of the testicle until the skin begins to be a little sore,—that is, it is to be reapplied daily until the skin begins to be slightly inflamed, when the amount of counter-irritation that is desirable is obtained; then the treatment may be suspended. If absorption is not completed by the time the skin recovers its tone, the ointment may be reapplied and the same course gone through with again. This is the simple method of counter-irritation for stimulating the absorption of the plastic material.

These conditions almost invariably recover, but whether recovery is not attended in a considerable proportion of cases with obstruction of the spermatic duct and practical sterilization of the patient is another question. It has been claimed by a number of prominent authorities that a man who has had gonorrhœal epididymitis in both testicles is sterile from obstruction of the vas deferens. This, however, like a good many other statements, not only needs verification, but has been, I think, pretty positively refuted. I have a personal acquaintance with several instances which would clearly constitute a refutation of this statement. I am sure that I have known fertility to result after double gonorrhœal epididymitis, and that, too, without there being any question as to the authorship of the fertility. This is not always a question that can be positively answered, but I am sure that I am familiar with one or two cases in which I can confidently state that I know the father of the baby.

The patient before us has the disease on only one side, but we must remember that he still has a chance to have it on the opposite side, either during the present attack or at a subsequent one. The first thing to be done for him is to support the testicle and apply an ointment composed of opium and belladonna, as I have indicated.

LITHOLAPAXY: SOME MODIFICATIONS OF BIGELOW'S OPERATION.

BY GEORGE CHISMORE, M.D.,

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WHEN Bigelow, in 1878, first described to the world his operation under the name of litholapaxy, he contributed more towards advancing the best methods of dealing with stone in the bladder than it has ever fallen to the lot of any individual to do before or since. The principles he so clearly set forth, the admirable instruments he devised, and the practical points of his technique bear witness to his great originality, ingenuity, and skill. One of the earliest to adopt his methods, it has been the ambition of the writer to add such details as personal experience suggested towards working out the ideas of the master, and the object of this paper is to present to the profession the results attained.

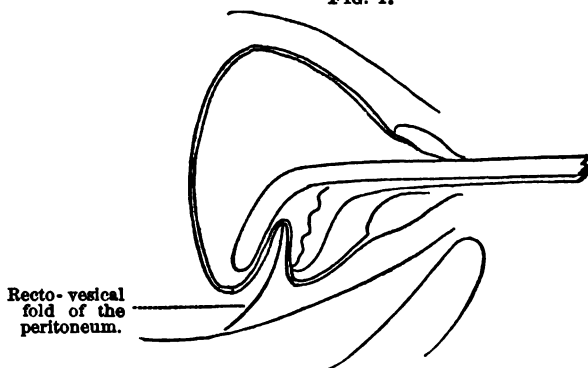
The beginner in litholapaxy will soon discover certain difficulties, among which will be found obstruction to the passage of the necessary instruments through the deep urethra, trouble in catching the *last piece*, apparent sacculation of the bladder, and the impossibility of removing the entire stone at a single sitting. The first may and should be overcome by tactile skill and extreme gentleness. When the beak of the lithotrite or point of the aspirating tube is arrested on arriving at the anterior triangular ligament, a brief delay to overcome spasm, slight alterations in the direction of the point of the instrument, feeling, as it were, along the face of the ligament for the urethral opening, will at length be rewarded by an entrance into the bladder without force or injury inflicted upon this, the most resentful portion of the urinary tract.

To overcome the difficulty of finding the *last piece* the author has devised a lithotrite which, in his hands, has proved very useful. This instrument and the manner of using it will be fully described later.

The chief source of the *apparent* sacculation is a partial fixation of

the bladder at the point and along the line where the peritoneum is reflected from the bladder to the rectum, the vesico-rectal fold (Fig. 1).

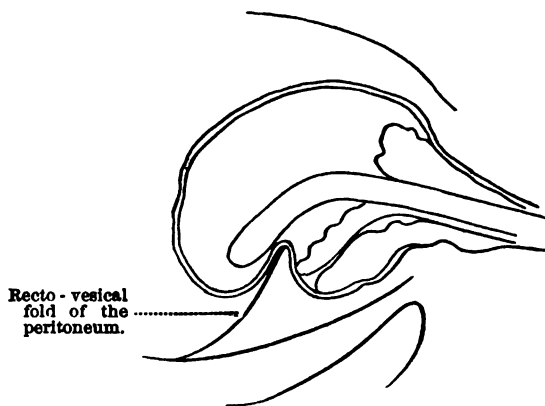
FIG. 1.



Schematic view illustrating the danger of pinching the bladder at the line of attachment of the recto-vesical fold. Lithotrite reversed; prostate normal.

With the beak of the lithotrite reversed and open, one jaw below and the other above this line, the posterior wall may be carried backward to such an extent that on closing the instrument as it approaches this fixed line a deep fold, including all coats of the viscus, is within the bite, and if force be applied, irreparable injury may be done (Fig. 2).

FIG. 2.



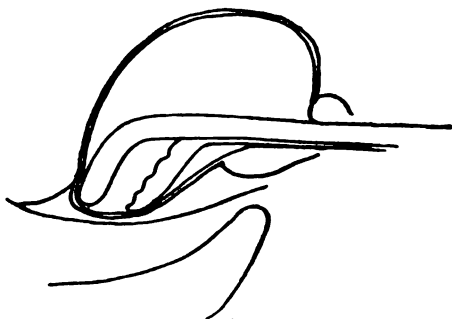
Schematic view illustrating the danger of pinching the bladder at the line of attachment of the recto-vesical fold. Lithotrite reversed; prostate enlarged.

I have demonstrated this fact on the cadaver, and a knowledge of it, together with the characteristic *feel*, should serve to prevent such an accident. If both jaws are below this fold, on attempting to open the

lithotrite the jaws will be grasped precisely as if they were within a small pocket, as, indeed, they are (Fig. 3).

A consideration of the causes that prevent the completion of an operation at a single sitting is of the utmost importance to the operator.

FIG. 3.



Showing lithotrite reversed, both jaws below the recto-vesical fold. Bladder apparently sacculated.

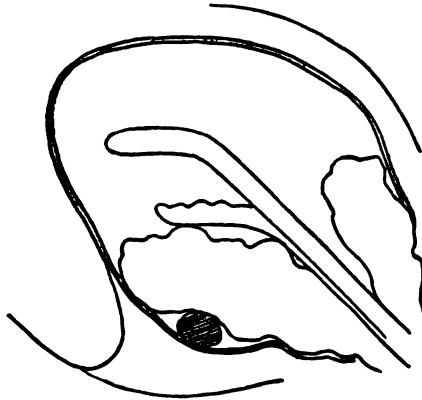
A thorough understanding of them will not only serve to prevent his doing injury by unduly prolonging fruitless attempts, but will also enable him to divide his cases into two classes, separated by a well-marked line, in one of which he may confidently hope to clear the bladder at the first trial; in the other several sittings will probably be needed, and he should never neglect to inform his patient of that fact, in order that, in his disappointment at not finding entire relief, he may not be so discouraged as to refuse further attempts.

The main cause of difference in these classes will be found in the *condition of the prostate gland*. When this organ is normal in size, the urethra of normal calibre, and the vesical orifice at its normal level, it is, in the great majority of cases, an easy matter to entirely free the bladder of stone at a single sitting, the rare exceptions being when a prolongation of the calculus has dipped down into the urethra, thus producing incontinence of the urine and giving rise to a contracted, thickened, and irritable state of the bladder that will not admit or retain the small amount of fluid necessary for the operation. I have as yet encountered but two such cases.

When we are confronted with an enlarged prostate and a stone we have a very different problem before us. Here, just in proportion to the degree in which the gland is hypertrophied, successive areas of the lower part of the bladder are removed from the possible reach of the jaws of the lithotrite. The intruding mass of the prostate pushes its

way upward, carrying the vesical end of the urethra with it, thus altering the topography of the interior of the bladder until, in extreme cases, it is stretched cap-wise over the mass. Such enlargement is usually irregular, thus forming projections and depressions that, with the deep sulcus between the whole mass and the vesical walls, form hiding-places for small stones, or fragments even of considerable size, that during an operation may become impacted in them in such a manner as to render dislodgement at that time impossible (Fig. 4).

FIG. 4.



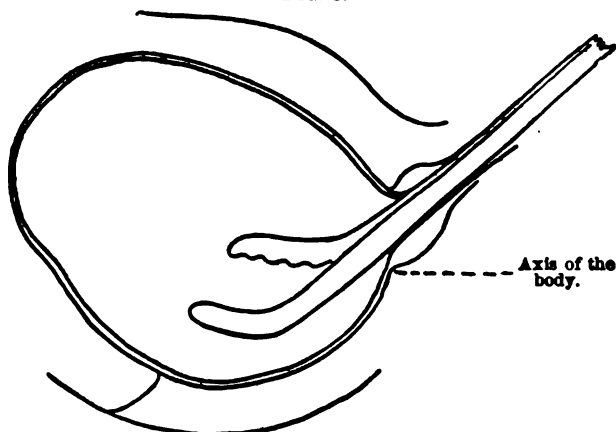
Schematic view of a stone imprisoned between an enlarged prostatic mass and the posterior wall of the bladder. The lithotrite is reversed.

Added to this, a large number of such cases have already begun "catheter life," thus increasing the danger of unduly irritating the urethra by reason of the necessity of promenading it with the catheter at short intervals after the operation is over. Time and again during my earlier operations I became conscious that a considerable piece that had been clearly felt had vanished utterly. Once I did a suprapubic section, and on getting the fingers into the bladder found it, to my astonishment, apparently empty. More thorough search found the intruding prostatic mass—as large as a small orange—slightly movable, and on slipping the finger down behind it a stone as large as a filbert was discovered, imprisoned deep down between the prostate and the bladder-wall. The information gained from this experience furnished a clear explanation of the way in which a piece might elude the operator for the time being.

The finger in the rectum will afford some knowledge of the size of the prostate, but for the purpose of litholapaxy the best guide is the angle that the shaft of the lithotrite makes with the axis of the body

when the beak is in the bladder (Figs. 5, 6, and 7). In extreme cases it may exceed thirty degrees below the level, whereas in normal cases

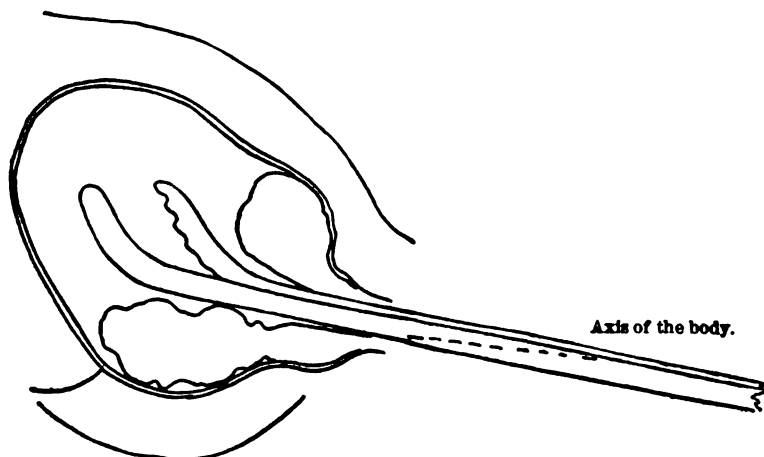
FIG. 5.



Angle of the shaft of the lithotrite when the beak is in the bladder. The prostate is normal.

it may be quite as much above. It is in this second class,—i.e., where the prostate is enlarged,—that the principle of my lithotrite—that of

FIG. 6.



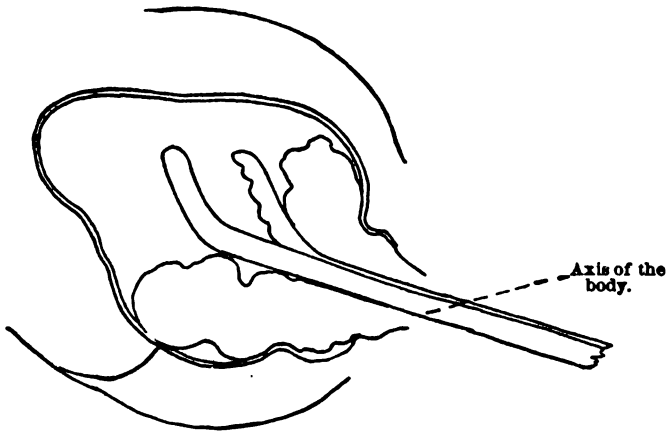
Angle of the shaft of the lithotrite with the axis of the body when the prostate is moderately enlarged.

making the piece hunt the instrument instead of the instrument hunting the piece—comes into play.

This lithotrite may be described as much lighter than Bigelow's,

very simple in construction, easy to clean, and but little liable to get out of order. The male blade is tubular, and is fitted with a stopcock near the outer end. The calibre of this tube is circular and of sufficient diameter to admit of a strong stream being forced in and sucked out by the action of the aspirator or wash-bottle. When the bulb is compressed, the current passing in causes the stone or fragment to boil up, as it were, and when the grasp is relaxed the returning flow tends

FIG. 7.



Angle of the shaft of the lithotrite with the axis of the body when the prostate is greatly enlarged.

to bring it within the open jaws. In a paper read before the Medical Society of the State of California in April, 1886, it was presented to the profession and the following claims were made in its behalf:

1. A larger calibre of the catheter than hitherto found in any lithotrite, circular in form, consequently admitting of the freer passage of fragments.

2. Merit as a searcher in cases of stones that evade detection by the usual methods of exploration.

3. Simplicity of construction and the ease with which it can be taken apart to clean, an important point in instruments designed for use in lithotripsy.

4. Enabling the operator to proceed, after the first crushing and aspiration, uninterruptedly with the operation, without the necessity of the repeated introduction and removal of different instruments, thus diminishing the danger of injury to the deep urethra and lessening the time required.

5. Enabling the operator to avoid working with the beak reversed,

thus avoiding the most dangerous region, the fundus of the bladder, the only part where it can be easily grasped by the lithotrite.

I have used it in my last sixty-one cases,—many of them requiring several sittings and some having frequent recurrences, so that the total list of operations is greatly in excess of that number. The crushing power is supplied by a rack and pinion for stones that are too hard to

FIG. 8.

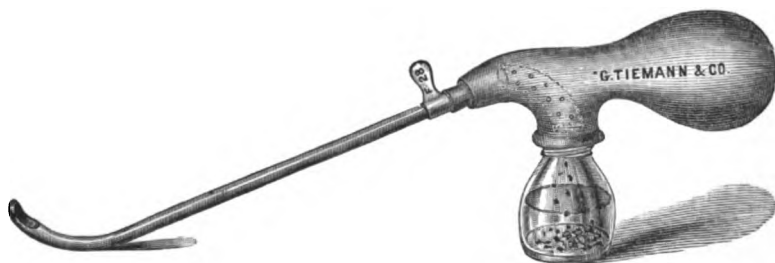


Bigelow's lithotrite as modified by Dr. George Chismore.

be crushed by hand (Fig. 8). A removable hard rubber cap is fitted to the male blade to protect the hand. By its use soft stones or fragments may be very rapidly pulverized. It is provided with a stylet to clear the catheter when required. Originally designed for fragments only, the instrument has proved much stronger than I expected, and I have pushed its use gradually, until now, with the exception of very hard stones, I employ it from beginning to end. One lately made withstood, uninjured, a measured force of one hundred and seventy-five pounds between the jaws.

The wash-bottle is also very simple (Fig. 9). It consists of a

FIG. 9.



Wash-bottle attached to a catheter.

rubber bag, shaped to fit the hand, without stopcocks of any kind, the soft rubber nozzle fitting the end of the lithotrite or an aspirating catheter equally well. A short, curved, hard rubber tube is placed

within in such a way as to direct fragments into the glass receiver, where they are but little disturbed by the reverse current. It is easily filled by submerging it in a pan of warm borated water, and compressing the bulb a few times until the air is excluded, and it is readily and completely cleaned by boiling. It is best to have two at an operation, so that while the assistant empties one the other is ready to the hand.

These instruments were made for me by George Tiemann & Co., 107 Park Row, New York, and are figured above (see Figs. 8 and 9).

I boil the rubber aspirator in a strong solution of boracic acid, which serves to increase the durability of the rubber to a remarkable extent.

A Thompson searcher, graduated in centimetres, to correspond with the scale on the shaft of the lithotrite, and a Forbes lithotrite for preliminary crushing of stones too hard for mine, with an assortment of straight and curved litholapaxy catheters, complete my armament.

In a total of eighty-five cases of stone, operated upon by the writer since his first litholapaxy in 1880, recourse has been had to lithotomy in four only, one a child of eight with a urethra too small for litholapaxy, one for a broken lithotrite,—both by the perineal route,—two, by suprapubic section after failure by the perineal, for stones that I could not at that time succeed in catching with the lithotrite, but from each of whom I have since removed stones by crushing. I, therefore, hold that any calculus that can be removed by perineal section can be, when the urethra is of sufficient calibre, gotten rid of with more ease and safety to the patient by litholapaxy.

In cases where the prostate is normal and the urethra will admit a No. 26 French sound, having discovered a stone, determined its size and location as far as possible with the searcher, it is my custom, if there be no contraindication, to proceed to operate at once; the patient on his back, buttocks down to end of the table, thighs and knees moderately flexed, feet resting on the foot-board of the operating table, or on chairs so placed that the operator can stand between them. The bladder is emptied by a small, litholapaxy catheter, after which the eye is withdrawn until it is just within the external end of the prostatic urethra; then, with a common, rubber-tipped P. syringe, an ounce or an ounce and a half of a four-per-cent. solution of muriate of cocaine is thrown in, a syringeful at a time. The fluid, after leaving the catheter on its way to the bladder, laves the deep urethra and gives the needed anesthesia to that region. Only this quantity is needed, because I find it far more convenient to operate in a small bladder. In about five minutes sensation is diminished or abolished. No preliminary

washing of the bladder is done, no matter what the state of the urine at the time of operating.

Before introducing my lithotrite it is taken apart and the male blade well coated with any bland substance of sufficient consistency to serve as a temporary packing, to prevent the egress of fluid and ingress of air between the shafts during aspiration. I find Packer's tar soap excellent for this purpose. It is then put together and worked back and forth until the coating is evenly distributed between the tubes, the surplus wiped off, and the outside well lubricated with vaseline. It is then ready for use.

Considerable opposition is frequently encountered when the beak reaches the anterior triangular ligament, and, let me repeat, it is *important* that *no force* be used in this locality,—brief delay to allow spasm to relax, slight alterations of the directions of the beak, and it will soon be coaxed into the bladder without the slightest pressure. Once within the bladder, the stone is felt for and when touched the beak is turned a little away, opened to the fullest extent, rotated towards the calculus, and gently closed. But little difficulty usually attends this stage of the proceeding. When the stone is grasped it is carried to the centre of the bladder, is moved about until sure that it is “free,” and also to determine if there is more than one by striking it against the others, as may sometimes be done. It is then crushed—by hand if soft enough—by rack and pinion if needed. Pieces nearly always gravitate to the original site of the stone, hence they should be sought for there, and crushing should be repeated as long as fragments can readily be found; then the aspirator, filled with a warm borated solution, may be coupled on, *débris* removed, and very probably pieces sucked into the grasp of the instrument while doing so.

If at any time the catheter becomes impacted with fragments the stylet will clear it in an instant without the necessity of removing the lithotrite.

If the stone is small the operation may be completed without taking out the lithotrite, but if it is large, time is saved by removing the crusher and aspirating through a tube as large as will pass. This is especially the case with a large uric acid stone. Such a calculus will, during pulverization, form a kind of adhesive mortar that will collect in masses and clog any but a fully fenestrated instrument, and the finer it is crushed the more it tends to pack. Working the lithotrite with sharp, quick, light strokes, the beak in the centre of the bladder is the best method of clearing it when it clogs that I have yet found.

I always commence an operation with my own lithotrite. If in

my own judgment I find the stone beyond its power, that of Forbes is substituted for the preliminary crushing. Dr. Forbes's lithotrite is by far the strongest I have seen ; the scientific distribution of the metal gives the maximum of crushing power, combined with great lightness. The lock is an excellent one, very convenient to operate, and is easily capable of crushing the hardest calculus that can be included in its grasp. Since it came out I have had the male jaw of one of my lithotrites made similar to that of Dr. Forbes, and find the change adds greatly to its efficiency. After the preliminary crushing, in cases that require it, the operation is completed with my lithotrite.

When the bladder is emptied the patient is sent to bed with directions to remain there until the soreness is gone. Such an operation takes but a short time, can be safely done in the operator's office in most cases, is almost devoid of danger, and nearly painless. Little if any blood is lost. But one assistant is needed, and I have performed it time and again without any. Beyond a little frequency and ardor in urinating, which rest and demulcents will quickly subdue, recovery is uninterrupted. Sometimes a few grains of sand are passed, occasionally small fragments voided ; rarely one remains large enough to require crushing ; this is a matter of a few minutes only and an anæsthetic is not required.

When a patient presents himself with hypertrophy of the prostate gland and a stone, he is plainly told that it may take several trials to clear his bladder. Consent gained, the bladder is emptied, cocainized, and an attempt made to seize and crush the stone in the manner described. If unsuccessful, the lithotrite is opened to the fullest extent the bladder will admit, the handle raised as much as possible to depress the beak, the aspirator attached, quickly compressed, and smartly relaxed, at the same time slowly closing the jaws in the hope of catching the stone which the returning current tends to draw within the grasp. If caught, the assistant inserts the pinion and crushes it at once. This proceeding is repeated as often as may be necessary, or until spasm, exhaustion, unusual pain, or other untoward symptom makes it wise to defer further attempts to a future time. Then fragments small enough to pass through the largest available tube are aspirated and the patient sent home and to bed. As soon as the irritation due to the instrumentation has subsided, usually from four to six days, another trial is made, to be repeated again, if required, until the bladder is free of stone.

During an operation it is sometimes well to diminish or increase the fluid in the bladder or change it altogether. This can readily be done by allowing as much as is wished to escape by opening the stop-

cock, or adding the quantity desired by compressing the aspirator, turning off the stopcock, uncoupling and refilling the aspirator, and repeating the process until the end is attained.

When the prostate is greatly enlarged and a stone or fragment is known to be present, it has happened several times to the writer that it could neither be touched nor seized on one occasion, but was readily found and crushed upon another. When the searcher fails to detect the stone or fragment it is a waste of time, in most cases, to introduce the lithotrite, and the patient is therefore told to come again.

No time limit can be set within which it is wise to desist. Tolerance varies greatly, but the operator should bear in mind that it is better to stop too soon than to incur the risk of lighting up inflammation by too prolonged manipulation.

The number of sittings will vary with the difficulties of the case and the skill and experience of the operator. More than three are rarely needed, and after the first cocaine may usually be omitted.

During the intervals no washing of the bladder is permitted. I have never known it to do any good. I have often found it harmful. Indeed, I would rather run the risk of an operation such as I have described than that of having my bladder washed out once in the manner in which it is usually done. Besides, the mucus serves a useful purpose, that of enveloping remaining fragments with a soft, slippery coating, thus protecting the bladder from contact with sharp angles, and facilitating the passage *per urethram* of pieces small enough to come away. If the urine becomes foul, washing will make it worse, while, on the other hand, it will speedily clear up when the cause, a fragment, is removed.

With regard to cocaine anæsthesia, I used it for the first time December 6, 1884, felt my way carefully, gave ether seven times in my next twenty cases, and gave it for the last time July 10, 1889. Since that date I have used cocaine in all operations for stone, or fragments of stone, in which an anæsthetic was needed.

On very few occasions there has been slight toxix; never enough to cause me to suspend the operation. In most cases the anæsthetic has been all that could be wished. I inject a fresh lot whenever the patient begins to suffer, and have, on occasions, kept up the influence for as much as three hours, using for this purpose eight ounces of a four-per-cent. solution.

As to results: of a total number of eighty-one cases of litholapaxy—twenty with Bigelow's and sixty-one with the author's instruments—there have been two deaths, one eight and the other twenty days

after the operation ; autopsy in both,—one clearly demonstrating that the operation did not affect the result, the other showing that it might possibly have hastened it. The others made good recoveries. Many of the cases were in a most pitiable condition, old, worn with pain, marked degeneration of important organs, kidneys, liver, and heart. Still they have gained a most satisfactory share of relief, and I have often been astonished at the very slight amount of distress due to even prolonged manipulations. In four cases there have been frequent recurrences ; two of these I cut by the supra-pubic route to assure myself that the bladder was really clear ; in both the lithotomy was quickly followed by new calculi, which I have been able to remove by crushing. These stones were oxalate of lime. On the other hand, I have lately seen the first of my cases, done sixteen years ago, and, although the stone was an oxalate, there has been no recurrence. Every endeavor has been made to learn the history of each case, and had there been other recurrences I believe I should have heard of them. My youngest case was twenty-eight years ; my oldest, seventy-six years,—average age, fifty-eight years and six months. There were forty oxalates, twenty-six phosphates, eight uric acid, five mixed, and one of unknown composition. The weight of the largest was one thousand grains dry ; the smallest, seven,—average, 130.9. There were eighty males and one female. The prostate was normal in seventeen, and enlarged in sixty-three cases ; of the latter, fifty-four habitually used the catheter.

Although the operation here recommended is not precisely the litholapaxy of Bigelow, in that several sittings are contemplated to remove a stone, nor yet a lithotritry as described by Sir Henry Thompson, for the reason that fragments small enough are washed away instead of being allowed to pass by nature's efforts, it is still based upon Bigelow's principles, and will, I hope, be allowed to retain the name he gave it. It lacks the brilliancy of the cutting methods, but it is safe, and entirely feasible to any one who has the gift of patience, a gentle hand, some mechanical tact, and the proper professional training. It is an operation in which, perhaps, more than any other, personal experience becomes an important factor, the deftness that comes by repetition. This, it is feared, will always limit it to the hands of the specialist, and is its weakest point ; still, as stone in the bladder is comparatively a rare disease, and as most of its victims are able to withstand a journey, it is not too much to hope that among the rapidly-growing number of skilful genito-urinary surgeons he may reach one who will safely, surely, and quickly rid him of his enemy.

CICATRICIAL STENOSIS OF THE MOUTH.

CLINICAL LECTURE DELIVERED AT THE SOUTHERN MEDICAL COLLEGE.

BY J. McFADDEN GASTON, A.B., M.D.,

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GENTLEMEN,—A. N., aged four, a negro girl, comes before you to-day for examination. She was allowed to take into her mouth some of the powder commonly known as "potash" by washer-women. The caustic effects were very evident, and it is supposed that the powder did not reach the œsophagus, but was spit out by the child, not, however, without leaving a corroded surface upon the tongue, gums, and mucous membranes of the mouth and also of the lips. No special medical aid was summoned, and the child was quieted by ordinary remedies. She was presented at the surgical clinic of the Southern Medical College in the winter of 1894. Her mouth was then examined by myself before the class and an operation determined upon to correct the following conditions: The mucous membrane of the cavity of the mouth was adherent all around to the gums, while the lips were also firmly united except at the middle, where an orifice which would not permit of the entrance of the little finger existed. The operation consisted in the cutting of the cicatricial tissue which bound the mouth by incising the skin and mucous membrane and in the careful coaptation of the mucous membrane and skin for the purpose of forming a new pair of lips. The necessity for the most delicate suturing of the mucous membranes by four separate rows corresponding to the four incised surfaces starting from the constricted portion of the mouth backward required some time. The little patient was therefore put under the A. C. E. mixture before I made the incisions, and I found that several blood-vessels would have to be ligated. But, on the whole, we succeeded in controlling the hemorrhage by pieces of absorbent cotton wrung out of hot water. Catgut sutures were used for approximating the mucous membrane, and the surfaces, when thus united, pre-



FIG. 1.—Apparatus for the correction of cicatricial stenosis of the mouth.



FIG. 2.—Result of an operation performed on Case I. for cicatricial stenosis.

sented an even red appearance resembling a lip. The cut surfaces were dusted with boracic acid and iodoform gauze was applied between them. The mother of the child was instructed to keep the two newly-formed lips apart. She brought the child back at the next clinic a week afterwards, and the face was found to be somewhat swollen and some of the sutures had been absorbed.

The dressing of the wound consisted in the careful cleaning of the mouth with turpentine and oil and the reapplication of iodoform gauze to separate the lines of incision.

The mother did not co-operate in the treatment as she should have done, for the lips became agglutinated and the final result was unsatisfactory, with a constant contraction of the orifice until it became evident that the aperture would soon have diminished to its former size. She only gave us warning of this several months later.

As the regular lectures had been suspended and the mother was anxious for another trial of surgical measures, I undertook to have this operation done at the college clinic, with a firm determination on the part of the mother and myself that the surfaces would not be allowed to become agglutinated again.

This operation was performed by my son, Dr. J. McF. Gaston, Jr., assistant to the chair of surgery. He proceeded as before, with the exception of a division of the several bands within the mouth and the adhesions of mucous membranes around the teeth. Silk was used for sutures. The further precaution was taken to have hooks of wire made, and these were covered with plain gauze and used to hold the angles of the mouth open. An elastic band was passed around the head and secured these hooks with the gentle pressure necessary for this. These photographs of the little girl, taken about two weeks after the operation, will enable you to judge of the apparatus (Fig. 1), for which I wish to return thanks to the chief of clinic, Mr. A. H. Lindorme, a student, who assisted us in the operation. The patient has now been examined carefully for the purpose of determining the present condition, over twenty months after the last operation. Recontraction has probably gone as far as it ever will. The child is healthy and cheerful. Her mouth is small, but you perceive that it admits this silver quarter of a dollar with no difficulty, and that the interior of the cavity is free from adhesions, while the bands from the gums are absorbed except at the chin, where two or three small filaments remain. The general appearance is also very different, for a ruby red of the lips has replaced the white of the burn. Even where the angles recontracted, the force exerted by the hooks worn for three or four months constantly, day and

night, served to form a groove, which gives the appearance of a closed mouth.

Her mother is now satisfied to allow the child to remain as it is, and there is every reason to think that with the growth of the child the mouth will also grow, and that finally a small but adequate mouth may always persist in spite of the action of cicatricial tissue, so hard to overcome.

Three other cases have occurred where operative procedures were resorted to, two of them in my own practice, and one of them within the last year.

CASE II.—N. E., aged twelve, white, and a female, was salivated when she was sick two years previously, and large, ulcerated surfaces were found on the tongue and lips. She was under the treatment of physicians in Florida. No effort was made to keep the jaws from uniting, so that dense cicatricial bands were found in the mouth firmly connecting the gums, but the bands had been severed for temporary purposes of feeding. Many of you need only to be reminded of the case to recall the operation last winter.

She was operated upon in the amphitheatre of the Southern Medical College by myself. The dense bands were divided, and a large band dissected out and gauze compresses inserted. Improvement is evident, but there was recontraction, and the final result was rather unsatisfactory. Her mouth could not be opened before the operation on account of the fixidity of the jaws, but after the operation they could not be kept closed sufficiently.

CASE III.—Jim Wall, aged twelve, white, had been salivated and had already at my request undergone one operation by Dr. Toland, formerly of Columbia, S. C., and later the founder of Toland Medical College, San Francisco, Cal. He was operated upon by myself while I was practising in Chester District, South Carolina, in 1847 or thereabouts. Dense cicatricial bands were divided and considerable force exerted upon the jaws. The dense bands were dissected out entirely. The mucous membrane was brought together in the best manner possible, and continual opening of the jaws was practised. Complete restoration occurred.

CASE IV.—This was in the practice of Dr. Willis Foreman Westmoreland, the elder, who reported it in the *Atlanta Medical and Surgical Journal*, June, 1884, under the caption of "Two Remarkable Surgical Cases," from which I take the liberty of showing you the figures, representing the boy before and after operation. The boy had been burned five years before the date of the operation, November 28,



FIG. 3.—Dr. Westmoreland's case before operation.



FIG. 4.—The same after an operation for the restoration of both lips.

1883. He could not receive nourishment of a kind and quantity necessary for his well-being and was very much emaciated. A No. 10 bougie was all that the orifice would admit. Dr. Westmoreland operated and secured a perfect result. These cases are comparatively rare, and Dr. Westmoreland considered that he was confronted with a case requiring a test of his ingenuity. He performed a similar operation which I had performed thirty-six years previously, with the exception that he dissected up the mucous membrane, slipping it over the incision made. He secured union by first intention and removed some of the sutures on the second day, using isinglass plaster for the approximation of the edges. The operation he performed required three hours for its completion.

Dr. Toland, as stated, performed the operation before I did. The cicatricial tissue was reproduced and the stenosis of the mouth was not corrected.

The lips were not implicated in this case, but the jaws were almost immovably fixed by bands, which he severed without excision of any part.

The case of this little negro girl before you is an illustration of the reproduction of the mucous membrane by the granulation of the incised surfaces, for the edges of the mucous membrane did not unite by first intention. The lips were kept apart by the hooks sufficiently to cause traction upon the mucous membrane within the mouth, so as to prevent the formation of bands of cicatricial tissue, and this also granulated between the gums and the cheeks, so as to form a new mucous membrane in the gap left by the incisions.

The photographs show these granulating surfaces upon the lips, but not inside the mouth (Fig. 2). I will have her to put out her tongue now, so that you may see that it is free and that the mouth is in good condition.

The fact that granulating surfaces will reproduce a tissue similar to the one which surrounds the seat of an operation is well to keep in your minds.

TREPHINING FOR EPILEPSY FOLLOWING INJURIES TO THE SKULL.

CLINICAL LECTURE DELIVERED AT THE KENTUCKY SCHOOL OF MEDICINE HOSPITAL.

BY WILLIAM L. RODMAN, A.M., M.D.,

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Surgeon to the Kentucky School of Medicine Hospital; Surgeon to the
Saints Mary and Elizabeth Hospital; Consulting Surgeon to the
Louisville City Hospital, etc., Louisville, Kentucky.**

GENTLEMEN,—You will remember that in lecturing to you on the subject of chloroform, I stated that in head cases it was better to use chloroform rather than ether as an anæsthetic, because ether is a heart stimulant, and we are apt to have more hemorrhage than when chloroform is chosen. While my preference is ether in other cases, in operating upon the head I would recommend chloroform.

The case which will be shortly brought before you is one of epilepsy. The patient is a young man, twenty-two years of age, who has suffered from epileptic paroxysms, which have been gradually increasing in severity and frequency for the past ten years. Prior to the first attack he received a blow on the right side of the head over the fissure of Rolando, at its commencement or thereabouts. Before he goes into a fit he has a jerking of the left arm and leg; after the paroxysm he has decided pain in the cicatrix. In speaking of the case on a previous occasion you will remember that I told you differently, but now we learn that we were misled by the statements of the man's brother, innocently of course. You will remember I said at the time that we would not operate on this patient, but would keep him in the hospital for some time and watch him carefully. We cannot be too careful in getting a complete history of such cases before operating. When the patient was first brought here, his brother stated that the paroxysms always began by throwing out the right arm, or jerking of the right arm and leg, the paroxysm becoming general and extending over the entire body. His brother was positive about this when he

first came into the hospital. The brother now comes to us, however, with an entirely different statement, and says that some years ago,—and he has been talking with the mother and father about it,—when the paroxysms first commenced, they were on the left side,—that is, the first manifestation would be jerking of the left arm and leg, and that the patient always complained of pain in the cicatrix after a paroxysm. Observation in the hospital confirms the last statement made by his brother, that the jerking begins in the left arm and leg. Since his brother has returned and made the positive statement that the paroxysms have always commenced on the left side, and further observations in the hospital have confirmed this statement, I believe we now have a clear history, and it is just what we would naturally expect from an injury to the right side of the head,—that the paroxysms should begin on the left side. With this view of the case I am going to trephine at the site of the original injury, the cicatrix on the scalp, and then be governed largely by circumstances. I do not know whether I shall remove the shoulder- and leg-centres or not, because, as I say, we have lost our bearing more or less in the case. If the symptoms were plainly confined to one side or one set of muscles, which would be Jacksonian epilepsy on the one hand, or if it were a case purely of focal epilepsy on the other,—that is, the paroxysms always beginning in the same set of muscles and then extending to the other muscles,—I should not hesitate to go on and remove the offending centre, regardless of the original injury about the head. This brings up an important point: you must not place too much reliance upon scars about the head in these cases, as many people have slight scars from various causes and they may signify practically nothing. I shall use a large Roberts trephine in this case, taking out a button one and one-half inches in diameter, so that I can examine the brain carefully. I shall examine the dura mater to see if there is a cicatrix, and I will not be satisfied with this; I shall open the dura at least, whether I remove the arm and leg-centres or not. I shall open the dura, and then if the brain-tissue seems to be scarred, or to be abnormal from a macroscopical observation, I shall not hesitate to do whatever may be deemed advisable, removing the arm- and leg-centres if necessary.

We will first measure the patient's head from the glabella to the external occipital proturbance; we find it to be thirteen inches. Counting from the front, then, seven inches is the point at which the Rolandic fissure should begin, as its starting-point is one-half inch posterior to the centre of this line. This lesion is right over an important area, and an injury here, just over the fissure of Rolando,

really ought to give just such symptoms as this man has. The fissure of Rolando is the most important of all these fissures, and can be located by drawing a line from the glabella to the external occipital protuberance; in this case it is thirteen inches. Now, the beginning of the fissure is practically one-half inch behind the middle, which would be seven inches,—accurately it is $55\frac{1}{8}$ of an inch back of the median line. Then the fissure runs downward and forward at an angle of $67\frac{1}{2}$ degrees to the distance of three and three-eighths inches. The arm- and leg-centres are just in front of the fissure of Rolando, the leg-centre being above, occupying the upper third of the fissure, the arm-centre the middle third, the face- and throat-centres the lower third; therefore a lesion or pressure here upon the fissure in its upper third should give trouble with the leg-centres, the middle the arm-centre, the lower third the face- and throat-centres.

Everything that we shall use in the operation has been thoroughly sterilized. The patient's head has been shaven, and covered with a soap poultice for twenty-four hours. We will again shave the head and sterilize first with soap and water, then with bichloride solution, and lastly with ether, to be certain that we maintain strict asepsis. I will make a liberal horseshoe flap, and the pericranium must go with the scalp. We find the scalp unusually vascular. I have now made a good large flap, and will put a large silk ligature through it, which is held by an assistant or pinned, so as to be held out of the way and not obscure visual inspection. You observed that I made a dent or point in the skull with a heavy pin before incising the scalp; I will now locate that point and apply the trephine. I have applied the trephine and now have a good furrow, the skull is quite thick at this point, as you know. It is necessary to remove the bone dust from the trephine occasionally, with a nail-brush or toothpick. Having gotten through the skull with the trephine, I will remove the button and incise the dura far enough away from the edge of the bone so as to give plenty of room to apply our sutures in closing it. We have cut a small vein in the dura which will be grasped with forceps; upon second thought it will be better to ligate it. We find an enormous vein in the pia mater which we shall have to avoid. The dura has been incised far enough from the bone so we will have no trouble in suturing it later on; this should always be remembered. If cut too close to the margin of the bone it will retract and get under the edge of the skull, and might embarrass you very much. I find a small aperture in the bone, a bleeding point, which I shall have to plug with catgut. Pressure controls it without trouble, but when

pressure is removed it bleeds again. You will notice there is no absence of pulsation, showing that there cannot be any great amount of intracranial pressure. There is no large tumor, cyst, or abscess, I take it, otherwise there would not be such distinct intracranial pulsation. There is a small bluish cyst in the pia mater which corresponds with the depression in the bone. This I remove. You can see plainly the large vein in the pia mater, which we will have to avoid; we will keep well over to one side, pick up the pia mater, and tear through it. I say tear through it, as by this means hemorrhage will be less than by making a clean cut through this membrane. Having exposed the brain thoroughly, we will apply the double electrode of Keen, which has been carefully sterilized, to prove whether we are over the arm- and leg-centres or not. With the patient lying perfectly quiet you will observe when we apply the electrode to the exposed brain tissue there is a distinct jerking of the left arm, while the right arm and other parts of the body remain still, proving positively that the part we have exposed is the arm-centre of the left side. Nothing could be more positive,—the demonstration is perfect. We have furious hemorrhage in these cases if we are not careful to ligate the veins before we cut them. You can see what an enormous vein I have encountered, and if I were to cut through it before ligating each side I would have a troublesome hemorrhage. Catgut is the only material you should use in ligating vessels in the membranes or brain-tissue. Having ligated the large vein in the pia mater, we are ready to pick it up and cut through it. I am rather tearing through the pia mater, instead of cutting it, to avoid hemorrhage. I now have the arm-centre very well exposed, and shall proceed to remove it. This may be done either with a sharp knife or scissors. I prefer the scissors. You will see I have cut another small vessel in spite of the utmost care being exercised. You should always be very careful about applying forceps to the brain-tissue, as it is so exceedingly friable that you can hardly allow the weight of the forceps to hang on it without the risk of doing considerable damage. I have now removed the arm-centre. The patient is standing the anæsthetic very well, and with curved scissors I will carefully trim away the edges of the brain-tissue so as to make a smooth surface. Sometimes it is advisable to control hemorrhage from the brain structures by means of a strong curved needle instead of using forceps, for the reason I have already given. All hemorrhage having been arrested, having removed the centre as demonstrated beyond any doubt by the faradic current, we will now proceed to stitch the dura mater and close the wound. You can see the advantage of using the

needle instead of forceps, as the weight of the latter tears the brain-tissue, it being so very friable.

As you can readily understand, if we do not suture the dura very carefully, we would have a strong tendency to hernia of the brain. We cannot be too particular about this step of the operation. And that is the reason why we should cut the dura not too close to the margin of the bone, because it might retract and slip under the edge of the skull and make its proper closure difficult or quite impossible. We will close the dura with a very delicate needle and fine catgut, and this should always be done with non-chromicised gut. I shall use a continued suture in closing the dura, as I believe it is better. In cases where you have a scar of the dura, or where it is necessary in removal of a tumor of a malignant nature to sacrifice it, Keen, of Philadelphia, has suggested that you take a piece of the pericranium and turn it with the osteogenetic surface upward and attach it to the dura. It grafts well. He has practised this on several occasions, and it is known as his method. Perhaps it is more ideal not to make drainage, but in all cases of tumors, abscesses, and cysts drainage must be made, and the tube is usually preferred. In a case of this kind, of course gauze-drainage is better, as we are using it to stop hemorrhage. Sometimes after these operations you may have paralysis, not only of one side of the body, hemiplegia, but you may have a pretty general paralysis from a blood-clot which forms. It disappears in time. All hemorrhage has been perfectly controlled by gauze pressure, and we will now close the external wound and apply the usual dressing.

The dressing will be changed in forty-eight hours, so as to remove the gauze packing. As you see, the patient is blanched and suffers considerably from shock,—a not infrequent result of brain operations.

[Patient suffered from shock for six or eight hours, but finally reacted well. Gauze packing was removed in forty-eight hours. Union by first intention. Paresis of arm for some ten days; no further convulsions; very greatly improved in appearance and every way. Every one says that he is more intelligent. Paresis of arm disappeared in three or four weeks.—W. L. R.]

The next patient which will be brought before you is a young man twenty-three years of age. During the presidential campaign of 1892, while driving home, somewhat the worse for liquor, he was thrown from a road-cart, striking his head on the left side, near the junction of the parietal with the frontal bone, receiving a compound depressed fracture of the skull. At that time he was seen by two country physicians in the little town in which he lived, and we are told a consider-

able amount of bone was removed. We are further told that a piece of bone which was depressed was elevated. Whether that be true or not, since that time the patient has continued to have epileptic fits, sometimes very severe, and which have been known to occur in very quick succession. He had them more frequently for the first two years after the injury. Then, I am informed by his father, he passed nearly a year—accurately, a year lacking sixteen days—without a paroxysm. In the last two months they have returned with unusual intensity, and Dr. Zaring, under whose care the patient has been since the middle of April, says he has had a great many very severe paroxysms.

These paroxysms are just as one would expect from the location of the lesion. It is on the left side, between the leg- and face-centres, therefore you would expect twitching of the face and the right-sided convulsions which he has. It is interesting to watch his face, which will twitch for a moment or so, then his right arm will jerk, and then his right leg, after which the paroxysm becomes general, showing that this is a case plainly due to pressure upon the face- and arm-centres. You will remember the case operated upon a week ago, where the pressure was more on the arm-centre, or between the arm- and leg-centres. This patient was brought here day before yesterday. Yesterday he had a number of fits, and they were so hard last night that we had to give him chloroform in order to give him relief. I examined the patient before coming into the lecture-room, and find he has some elevation of temperature. It is a question whether we had better operate upon him to-day for this reason, but all arrangements have been made, and his physician, who came here to-day especially to witness the operation, says that the patient's temperature for several weeks has been somewhat above the normal,—in fact, ever since he has had the case under observation.

I will say a few words about the operation before the patient is brought in. In all cases of this kind the patient should be well purged before the operation. His head should be carefully shaven; not only that, but it should be thoroughly disinfected with bichloride solution; then a soap poultice should be kept on the head for at least twelve to twenty-four hours, all of which has been done in this case. Then at the time of the operation the poultice should be taken off, the head reshaven, and the region of the wound that is to be made resterilized. After this is done we should make a large horseshoe flap, going down upon the depression, and we shall aim to apply the trephine just at the edge of the depressed bone. It is best not to make the trephine opening over the depression, because you might push it into the brain and

do more harm. We will use a small trephine in this case, and, after a button of bone is removed, we will enlarge the opening with rongeur forceps as much as we please, or this may be done with the chisel and mallet. It is a question in my mind whether we are going to find the lesion in this case outside or inside the dura,—i.e., extra- or intradural. Unless I see unmistakable evidences of mischief on the outside, I shall not hesitate to do as we did in the case a week ago, incise the dura and look for further trouble there. If I find even a scar in the dura that I think sufficient to cause or perpetuate the symptoms when once begun, I shall not hesitate to excise it. After the dura has been opened and we go down to the brain, if I find a scar in the brain substance I shall not hesitate to remove it. In short, we are prepared, as you should always be in cases of this kind, for a complete operation, and we shall do just as much as we think ought to be done, and no more. I would prefer not to open the dura, because the risk is necessarily slightly increased by doing so, yet the increased risk is more than over-balanced by the additional good accomplished if the trouble be inside the dura, therefore we had better do a complete operation, though sometimes it may look to be a little bold, rather than do an incomplete one and get meagre results. I do not myself believe that, if the operation is done under aseptic and antiseptic precautions—and they should be very rigid, perhaps more so than in dealing with the peritoneum or the knee-joint—the increased risk of opening the dura is so very great. That there is some increase I am quite ready to admit. The dura, if opened, should in all cases be sutured, and this should be done with catgut. I prefer the continued to the interrupted stitch, and if I open the dura I shall do so a little farther from the margin of the bone than I did in the last case operated upon, because in that case I was a little embarrassed by the opening being made a trifle too near the bone, still I was able to bring the cut edges of the dura together and get accurate coaptation, and there has been no trouble at all.

I saw the patient this morning, operated upon last Wednesday, and he was feeling so well that he asked if he could not get up. The temperature has not been above the normal, the wound of the scalp has gone together entirely by first intention, the gauze drainage was taken out at the end of forty-eight hours after the operation, and, barring the shock he had and which you may expect after an extensive intracranial operation, especially when accompanied by prolonged administration of chloroform, he has not had a single bad symptom. He has had no pain, there has not been a convulsion since the operation, and absolutely nothing to indicate mischief. Suture ma-

terial which should be used in the brain for closing the membranes or as ligature material for arresting hemorrhage should always be of an absorbable nature, and catgut, of course, is the only material we have of this kind. We should be very particular, however, as to the catgut that is used. You should always take a fresh bottle, one that has never been opened. Yesterday I spent half the afternoon looking around to get exactly the kind of catgut I wanted for use in this case, and found it at one place, the last bottle they had. You must be careful to get the best gut that can be procured from a firm that you know to be reliable, and who always sterilize the gut as it should be, because the introduction of gut that was suspicious might destroy the life of a patient. Catgut is the ideal suture and ligature material, but it is a dangerous one in some cases, and one that should never be procured except from the most reliable firms. I was told of a bad result recently that could not possibly have been traced to any other cause than the introduction of catgut that was not thoroughly sterilized. The suture material which we use in closing the scalp may be catgut or silk, it matters not which. Perhaps there is some advantage in using catgut even here, and I prefer using it in suturing the scalp also. In the operation to-day we hope not to have to make drainage. It was a necessity in the case operated upon last Wednesday because of hemorrhage from a vessel in the bone, which was quite a large one, and which could not be ligated, consequently it was necessary to plug the opening to control bleeding. It was controlled perfectly and there was not a drop of oozing after the operation, but it necessitated changing the dressing at the end of forty-eight hours. We shall hope to do the operation to-day without drainage, and if that is the case there will be no change made in the dressing under a week. At that time the wound should have gone together by first intention without trouble.

This injury is just over the fissure of Rolando, and you know what an important region this is in the brain. If it seems advisable to take out the arm- and face-centres, we will by means of the electric battery locate them accurately. Another important point : you should always give chloroform in these cases. You will remember I spoke to you about this in my former lecture. I suggest the use of chloroform because ether is a heart-stimulant and tends to increase the amount of blood to the brain, and you are much more liable to have hemorrhage with ether than if you use chloroform as the anæsthetic. I shall not use the large trephine which you saw employed in the other case. It did not impress me as being a good instrument. I had to remove it

several times on account of clogging, therefore I shall use a smaller trephine, enlarging the opening so made with rongeur forceps or with chisel and mallet, as may seem best at the time.

Having carefully sterilized everything that is to be used in the operation, including the hands of operator and assistants, I will make my incision immediately over the site of the original injury, and we will catch the vessels with forceps as they are severed. In this way hemorrhage will be slight or practically *nil*. The scalp is about the most vascular tissue that you can possibly cut through. Many small vessels may be seen spurting as I make my incision. The scalp is closely adherent to the skull at the point of the original injury. The pericranium or periosteum should be included in the flap to give us plenty of room. There is no advantage in making a small incision in an operation of this character. The flap is held out of the way by means of silk ligatures. My flap has now been completed, the skull has been made bare, and if in the former operation a great deal of bone was removed, it must have been implanted very successfully. There is no evidence of any bone having been removed at all. As I have already indicated, it is better not to trephine right over the depression, but just at the edge of it. It is best to try to cut evenly with the trephine. In spite of every precaution, you will sometimes cut more to one side than to the other. The skull is not of uniform thickness everywhere, and you may happen to cut where there are these inequalities of the skull, and the instrument will cut through at one side before it does at the other. We cut very slowly when we get into the diploë so as to avoid injury to the brain substance. We can easily tell when we are in the outer table, because the dust is then perfectly white. As soon as it becomes well reddened we know that we are in the diploë. The advantage of the Galt trephine, which we are using, is that you are not apt to push it through into the membranes on account of its shape. The old-fashioned trephine, with edges straight up and down, is very dangerous, and, strange to say, the English use it yet, although Treves and other good authorities advise the American instrument, which was devised by Galt, of Virginia, and named for him. We find the skull in this case extremely thick, fully one-half inch, and twice the thickness of the bone in the case operated upon a week ago. I have removed the button and you will observe the dura. There is quite a large vessel right over the dura, and, if we had not been very careful with the trephine, we should have cut it. I tried to get a Horsley's dural separator, but there is not one in the city. The instrument is of great advantage in getting around under the bone to separate any ad-

hesions there may be between the dura and the cranium, and in this way avoid injuries to the brain or membrane. The skull is so thick that we will use the mallet and chisel to enlarge the trephine opening, as it would be absolutely impossible to accomplish this with the rongeur forceps. We hold the chisel quite obliquely, otherwise we might do considerable harm. The dura is adherent to the skull, therefore I would be afraid to use the forceps even if it were possible. I do not wish to tear the dura, as, if I have to touch it at all, I want to make a clean incision, otherwise it could not well be sutured. Tension upon the dura is very great; in fact, I never saw such dural tension in my life. I am using a blunt dissector in separating the adherent dura from the bone, and am doing it very carefully to avoid tearing. In irrigating the field of operation we use sterilized water, as we desire to apply electricity to locate definitely the arm- and face-centres, and, if we use any antiseptics upon the brain, it responds very badly to the action of electricity.

Having separated the dura all around, I now will considerably enlarge by mallet and chisel the opening made. This chisel cuts readily and I have no trouble in enlarging the opening in any direction. It will be necessary to make an opening at least two and one-half to three inches in diameter to get rid of all depressed bone. Such depression I have never witnessed before, and can hardly understand how this man has lived. As I remove the depressed bone (Fig. 1) it leaves a dent in the dura like the pitting on pressure in an cedematous leg. Having now removed a large amount of depressed bone, and seeing no reason to open the dura, I shall close the wound without drainage.

A liberal dressing will be applied, and it is not to be disturbed for a week. The patient is in excellent condition, and has stood both the operation and the chloroform well.

[NOTE.—Three weeks later the patient is entirely well, walking all about the hospital and grounds. No more convulsions.—W. L. R.]

FIG. 1.



Button of bone removed from Case II. The shading on the lower part of the inner surface corresponds to the depression.

MULTIPLE INVAGINATION.

CLINICAL LECTURE DELIVERED AT THE NORTH-WESTERN UNIVERSITY MEDICAL SCHOOL, CHICAGO.

BY M. P. HATFIELD, M.D.,

Professor of Diseases of Children, North-Western University Medical School,
Chicago, Illinois.

GENTLEMEN,—The first case that I present to you is that of Herman Milling, aged four and three-fourths years, whom some of you may remember as having seen here last fall. The history of the case, as given by his father at that time, was very unsatisfactory, for nothing could be learned further than that the boy had been sick for many months and suffered from paroxysms of excruciating pain, which he located in the abdomen. A careful examination, made under ether, at that time revealed a movable tumor, located about one inch and a half to the left of the umbilicus, which could be drawn upward to the diaphragm or depressed to about the level of the navel. It was not particularly painful, except when drawn upward, during which time the boy was almost thrown into convulsions, which continued until the tumor was replaced in its lower position. The bowels were variable, but the passages contained well-digested food. There was no kidney lesion that was demonstrable, and no other lesion that a most careful physical examination could reveal. There was profound emaciation and a gradual wasting away of the body from the incessant pain. The child had been under the care of many other physicians, who had made all sorts of diagnoses, and left the boy, like the woman in Scripture, "rather worse than better." At that time I was strongly inclined to the belief that we had to do with a movable spleen, for the reason that, although the child was greatly emaciated, I was unable to locate the borders of the spleen, and from the mobility and general appearance of the tumor it seemed as if it might be a case of wandering spleen. The only hope of assistance lay in an exploratory operation, which was determined on early last December.

At that time Drs. Danforth, Earle, and the house physicians of Wesley Hospital were present. Before the operation there was a difference of opinion in regard to the tumor, similar to that which had existed among the physicians previously in attendance. Dr. Danforth inclined towards movable kidney, Dr. Earle to sarcoma of the omentum, and a recent graduate, the house physician, suggested that perhaps the trouble was in the intestine itself.

An incision was made after the method of Langenbeck and the intestines were brought forward. The spleen was found in its place, the kidney perfectly normal; but about midway in the transverse colon there was a knot the size of an infant's fist, which clearly consisted of an invagination of the gut at that point. There was much infiltration and œdema of the invaginated portions, producing stricture, which accounted for the intense pain, especially when angulation occurred, as it probably did when the gut was drawn upward. Several attempts were made to release the incarcerated portion, but the adhesions were so firm that it was only in a measure successful. The question of resection of the intestine was discussed, but as it seemed to be the unanimous opinion of all those present at the operation that the boy would undoubtedly die in a few hours, it was thought simply useless to do anything further than to return the bowels, dress the wound antiseptically, and put the boy to bed with a small dose of deodorized tincture of opium. To the surprise of all, from that time on the child made a rapid recovery. After the first night there was absolutely no rise in temperature, no peritonitis nor pain of any kind, so that the single dose of opium administered the first night was all that was required during his whole stay in the hospital. On the third day there was a slight motion of the bowels, attended with a small amount of blood, but without pain, and after this all motions were normal. The boy gained steadily in strength and health, until he left the hospital three weeks later, apparently perfectly well. From that time until two weeks ago I did not see the boy personally, but heard from his father that he was gaining in flesh and strength.

About two weeks since the father came in great haste, asking me to see the boy again, and saying that on the night previous, after going to bed apparently perfectly well, he had wakened with intense pain and vomiting. A neighboring physician, who had been called in, had in a measure controlled the nausea, but at the time when I saw the child he had considerable fever, a largely distended abdomen, great restlessness, and pain. The tenderness was referred to the ileo-cæcal region, where an irregular tumor, about the size and shape of two

fingers, could be found. This was so exceedingly tender that without an anæsthetic it was impossible properly to examine and outline its boundaries. This condition lasted for three days, and was treated with warm poultices and the free use of opiates, but without much apparent result, when it was determined to send the boy back to the hospital and perform a second operation. Then the pain gradually diminished, the bowels began to move naturally, and he is to-day, though somewhat the worse for his experience, convalescent, and unless he walks considerably or overeats, has no pain nor vomiting.

So far as I know, the case is unique, and having once made so bad a failure in the way of diagnosis, perhaps it would be more modest to leave its differentiation to others. But with my present knowledge of the subject it seems to me to be a case of multiple invagination, the first attack being relieved by the operation; while the second one has been followed by a spontaneous recovery, so that until another invagination occurs, the boy may enjoy months or years of comfort. What the final result will be time alone can show, because if there is, as is probably true in most of these cases, an anatomical malformation in regard to the relative size of the gut, this accident is liable to occur at any time, though with diminished frequency, as the boy grows older.

Gynæcology and Obstetrics.

A CASE OF EXTRAPERITONEAL AND INTACT GESTATION OPERATED ON AT THE FOURTH MONTH.

CLINICAL LECTURE DELIVERED AT THE EDINBURGH ROYAL INFIRMARY.

BY D. BERRY HART, M.D.,

Edinburgh.

GENTLEMEN,—The object of this clinical lecture is to consider the case presently to be narrated by Dr. Chipman, and to give you my reasons for the diagnosis arrived at and the treatment adopted.

The history of the case is briefly as follows :

A CASE OF EXTRA-UTERINE GESTATION; OPERATION AND COMPLETE RECOVERY.

Mrs. F., aged thirty-three years, was admitted to Ward 24 of the Royal Infirmary, Edinburgh, on March 5, 1896. She was a primipara, and had been married for eighteen years. Her complaint was that she had periodic attacks of pain across the lower regions of the abdomen, lancinating in character; slight swelling of the abdomen, especially on the right side; and some change of the menstrual habit. The trouble had begun four months previously, in December of 1895. The history of her present illness was as follows :

In December of 1895 the patient noticed that her menstrual discharge was somewhat lessened in quantity, was dark in color, with stringy clots; and at the same time she experienced considerable pain. The pain gradually wore away, and for the ensuing four weeks the patient was quite comfortable. But the menstrual period in January of 1896 was attended by the same symptoms, the pain being more severe and paroxysmal in character. Throughout the month of January there was little discomfort, but the patient became conscious of a fulness in the right inguinal region. On February 2 the patient was suddenly seized with intense pain in the abdomen, so agonizing that she fell to the floor. She was put to bed in a state of collapse, was

cold all over, and vomited repeatedly. The pain gradually passed off, but the patient lay in bed for two weeks under the care of a local medical man. For several days after this acute attack the whole abdomen was excessively tender to pressure, and was swollen. Gradually this sensitiveness and general increase in size disappeared, but the swelling in the right inguinal region persisted, and rather increased in size. The patient did not menstruate in February. The above seizure had been coincident with its calculated occurrence. Three weeks after getting about again, there being still occasional attacks of pain, and the swelling in the groin still increasing, the patient sought admission to the Royal Infirmary, Edinburgh, and was admitted to the Buchanan Ward on March 5.

Thirteen years previous to admission, the patient suffered an abortion at the fourth month; for seven years she suffered from menorrhagia and leucorrhœa, with pain in the back; six years ago she was curetted. For the last six years—that is, up to December, 1895—her menstrual habit had been quite normal, and there had been no pain. Her family history was good. Her home had always been a comfortable one, and her work was not excessive. She began to menstruate at the age of thirteen,—every twenty-eight days. Each period lasted for three or four days. The quantity of the flow was moderate, four or five diapers being soiled. There was one month's amenorrhea in the course of the present illness, in February. She has been pregnant once, sixteen years ago, two years after marriage. The labor was instrumental, but the puerperium was satisfactory.

A physical examination of the patient shows that she is short and stoutly built. She is anæmic, and the facies is anxious. There is a supernumerary nipple with faint areola on the lower and inner aspect of the right mamma.

The abdomen is rounded and full, but uneven. The striations are uniform. There is no linea nigra; the umbilicus is retracted. There is a distinct, circumscribed fulness in the right flank. On palpation this fulness is shown to be due to a mass, which is rounded, smooth, tense, sensitive, and fixed. It occupies the triangular space between the anterior superior spine of the ilium, the umbilicus, and the middle line. The outline for the most part is distinct. It extends down into the pelvis, and reaches across the middle line, where its distinct outline is lost. This mass is semi-fluctuating. Percussion gives a slightly modified note, which is not absolutely dull, elicited over this mass; the note, otherwise, is tympanitic. There is no bruit on auscultation. Inspection of the external genitalia demonstrates that the orifice of the vagina

is parous ; there is slight purplish coloration, and a small swelling can be seen in the right labium majus. Palpation identifies this swelling as a small Bartholinian cyst.

The vaginal walls are smooth and secreting. The cervix uteri lies far forward, is lacerated and rough. By bimanual examination it is found that the uterus is directed slightly forward, is considerably enlarged, softened, and fixed. The uterus lies close up to the symphysis pubis and slightly to the left of the middle line. The right lateral fornix bulges downward and is unusually wide. This bulging is felt to be the base of the abdominal swelling. The whole tumor is ascertained to be the size of a child's head. It is fluctuating, sensitive, and reaches close up to the uterus. There is pulsation in the right uterine arteries. The posterior fornix is free. An examination through the rectum also assists in outlining the contour of this tumor, and the uterus can be clearly felt to be entirely distinct from the mass. The remaining viscera and the heart and lungs are normal.

The patient was kept in bed under close observation for a month. There was more or less constant pain, localized on the right side. For two days at the end of March there was a slight vaginal discharge,—blood-red, but with no decidual fragments. The swelling in the right groin steadily increased in size. The diagnosis of extra-uterine pregnancy, extraperitoneal and intact, was arrived at and an operation advised. Accordingly, the patient having been previously prepared, a mesial incision was made through the abdominal wall on April 7. The peritoneal cavity was rapidly explored and a line of definite adhesion on the right side pronounced to be the reflection of parietal peritoneum from the surface of the mass. The mesial incision was now temporarily closed with a couple of sutures and a flank incision made directly down upon the tumor. The various strata of muscle and fascia being divided, the opening led into connective tissue. On working carefully through this with the fingers a cavity was entered from which a living and apparently three-and-a-half-months-old fœtus was quickly drawn ; there was a considerable escape of liquor amnii. The opening was now enlarged, and the whole cavity rapidly plugged with iodoform gauze. There was comparatively little hemorrhage. The placenta was found to lie on the upper and outer walls. The edges of the wound were slightly approximated with three silk sutures, and the mesial incision, through which careful pressure had been made upon the inner wall of the sac while the plugging had been introduced, was now closed in the ordinary way. An extra padding of wool was placed over the flank incision and a binder tightly applied. The

patient rallied well from the operation, which was, after all, a short one. She progressed favorably and with little pain for two days, the temperature and pulse being fair. The dressing upon the flank incision was repeatedly changed. On the third day there was a slight discharge of blood from the vagina, and the patient began to complain of severe spasmodic pain. This pain was so severe that morphine had at length to be resorted to. The vagina was loosely plugged with gauze. On the morning of the fourth day a complete decidua was expelled from the uterus. On the same day chloroform was again given and the plugging removed from the sac. The hemorrhage set in *sharply* at once. The sac was accordingly replugged. There was now little pain. The previous pain the patient described as labor-like, and was, no doubt, due to the expulsion of the decidua. On the seventh day the plugging was again removed and a portion of the placenta separated. Bleeding, however, supervened, and it was considered wisest to desist. The sac was again plugged. On the tenth day chloroform was given for the third time and the whole placenta removed. The whole interior of the sac could now be defined, with a roughened area indicating the placental site; this sac lay altogether extraperitoneally and between the layers of the broad ligament. The patient now recovered rapidly. There was no pain. The sac was simply plugged with gauze from time to time and slowly cicatrized. The mesial incision healed by first intention, and the patient was ready to leave the hospital in six weeks. She was kept, however, so that a cast of the abdominal incision should be obtained, till the flank incision had completely closed. This took an additional three weeks.

In this case we had to determine two special points,—viz., the nature of the case and the treatment to be adopted.

The diagnosis was easy in this instance. Sometimes the reverse is the case. I have diagnosed cases like this in a few minutes and blundered over others for weeks. We had here, however, amenorrhœa, periodical and severe pain, and a lateral tumor appearing above the brim of the pelvis between the third and fourth month. The swelling passed out into the iliac fossa, and this showed its extraperitoneal nature. The uterus was also enlarged, and therefore one diagnosed an extraperitoneal gestation at or about the fourth month and unruptured. The fœtus and placenta, therefore, lay in the connective tissue between the layers of the broad ligament and in the iliac fossa. You may ask, how did I know it was not what is termed an ovarian pregnancy or a primary abdominal one? Well, ovarian pregnancy is so rare that with the positive signs of extraperitoneal gestation I felt justified in

excluding it; while primary intraperitoneal gestation is, in my opinion, as mythical as the great sea-serpent.

The treatment was necessarily operative. Various treatments have been recommended for extra-uterine gestation, but all have yielded to the use of the knife. You may dismiss from your minds all such plans as morphine injections, electricity, etc. What one should do is to open the abdomen and treat according to the special circumstances.

In this case I first opened the abdomen in the middle line. I did so to ascertain the precise conditions. I then found the peritoneal reflection high on the right side. It ran higher than the flank incision the surgeon makes for ligature of the external iliac. There could be no doubt now of the exact nature of the case. The part of the sac which lay beneath the mesial incision was thin; the placenta was farther out, and thus to have opened the sac now would have been a mistake. I could have removed the foetus easily, but the treatment of the placenta would have been difficult. Had I removed it at that time hemorrhage would have been profuse, and the thorough tamponade of the sac impossible. I therefore made a flank incision whose centre was three inches from the navel, and, after cutting through the muscles, came on the outside of the sac in connective tissue. With my finger I could feel the tension of the sac, and, easily pushing into it, extracted a healthy and living foetus, the cord snapping as I pulled it out. There was a gush of liquor amnii, but little blood. I now plugged the sac firmly with iodoform gauze and finished the case as described. I purposely did not stitch the flank incision at all. I wanted to have it large so that I could in a few days pass in my four fingers and scoop out the placenta either at one or several sittings. I did not separate the placenta at the time of the operation, not only to avoid hemorrhage, but because the placenta was not defined enough. When, however, the tampon pressure has thrombosed it, it can be separated with little hemorrhage, and can be easily distinguished from the adjacent tissues. I therefore removed the placenta on three separate occasions and the patient made an excellent recovery. Iodoform gauze is the best tampon in such cases. It enables one to avoid sepsis, drains admirably, and controls hemorrhage perfectly. What I recommend in such cases, therefore, is to incise the sac, extraperitoneally, if possible, extract the foetus, and then tampon the sac, removing the placenta on subsequent days. The opening into the sac should be left large for this purpose. No stitching is required if the sac opening is entirely extraperitoneal, but, if wholly or partly intraperitoneal, the intraperitoneal edges must, of course, be sutured to the abdominal wall.

CONVALESCENCE FROM ABDOMINAL HYSTERECTOMY; OVARIAN TUMOR; OVARIOTOMY.

CLINICAL LECTURE DELIVERED AT THE JEFFERSON HOSPITAL.

BY E. E. MONTGOMERY, M.D.,

Professor of Clinical Gynecology in the Jefferson Medical College; Gynecologist to the Jefferson and St. Joseph's Hospitals; President of the Philadelphia Obstetrical Society, etc.

GENTLEMEN,—In accordance with my usual custom, I propose to report to you to-day the patient upon whom I operated one week ago. She is about thirty-two years of age, quite fleshy, and had an abdominal tumor. This we recognized as a fibroid growth. I told you there were some peculiarities about it. It was exceedingly movable. We were not able to say definitely as to its exact condition. It extended high up in the abdomen, was oblong, and filled up the pelvis more than we would naturally expect from a fibroid growth alone. When we opened the abdomen this complication was explained by the presence of an ovarian cyst on the left side posterior to the uterus. This mass was closely attached by a short pedicle to the uterus. It was not recognized through the thick abdominal walls until after the abdomen was opened. There was also a cyst of the right ovary, consequently the operation consisted in the removal of both ovarian cysts and the greater part of the uterus, making an amputation in the cervix between the internal and external os. The ovarian and uterine arteries were ligated on either side and the peritoneum was stitched over the end of the stump. The wound was closed without drainage, as the abdominal cavity was dry. I show you the temperature record, by which you will see that there was a marked depression immediately following the operation, the temperature being between 94° and 95° F. Reaction soon took place, and her temperature reached 100° F. It varied little from this until the third day, when it became normal. Five days after the operation her temperature was 102° F. The patient is a Polish woman and does not understand English. She is quite nervous and anxious and is unable to understand why she could not

have all the water she needed to allay her thirst, so when an opportunity afforded that she was not observed she jumped out of bed and walked across the floor. Later she became unmanageable, requiring several persons to get her back to bed after she had jumped into two or three beds other than her own. You can understand that this is not considered a very commendable feature in convalescence after an abdominal operation where a large incision in a fleshy abdomen has been made. The patient was tied down, but appeared so distressed and could not realize why this was done that I asked Dr. Mehls, the resident physician, to remove the straps from her wrist and keep a nurse constantly with her. That night she jumped up, ran around the ward, taking several persons finally to hold her down. Since that time we have had her tied in bed. With the elevation of the temperature to 102° F., an inflammation of the left parotid gland developed. This occurrence is rare, and takes place either as a sympathetic process or as the result of a metastasis of septic material. The swelling is not so marked to-day as it has been, is not so tender, and the temperature is now 99° F.; it was normal this morning. The pulse has been good throughout. Apparently she has not suffered much pain or distress other than the mental, which is more marked at night. We have had to remove the patient from the general ward. Last night she slept without being tied. Upon examination of the dressings to-day we found one point of irritation around the middle suture and a couple of drops of pus. Part of the sutures have been removed. I did not remove them all because she may again become unmanageable, and I do not wish to imperil the newly-united tissues without the support of part of the sutures. The irritation was only at one point, so that the larger number of sutures remain intact. I also made a careful examination of the pelvis and found no sign of any trouble about the stump of the uterus, which was perfectly free and movable. There is no pain about the abdomen and scarcely any tenderness, nothing to indicate any local septic process. There has been no abdominal distention, the bowels have been moved freely, and the patient is taking liquid nourishment well. Of course, with the inflammation of the parotid gland, she is unable to use solid food. The points of special interest in this case are the occurrence of this delirium, which has probably been due to the inability of the patient to understand us, and the development subsequently of the inflammation in the parotid gland. As I have repeatedly informed you, it is my policy to give you an outline of the cases on which an operation has been performed in this clinic, regardless of the result, whether it appears to reflect favorably

or unfavorably upon us, and it seems poor policy to perform operations, keep you in ignorance as to the result, and leave you to form false conclusions as to the advisability of the methods we have practised.

OVARIAN TUMOR; OVARIOTOMY.

The next patient is a woman twenty-six years of age, unmarried, a domestic, whose father is living, in good health, at fifty-six years of age. Her mother has heart-trouble. She has one brother and six sisters, all of whom are healthy. She had the ordinary diseases of childhood and scarlet fever at an early age. There is no other history of acute illness. Menstruation began at the age of fourteen; the periods were regular, preceded for two or three days by pain. This pain was intermittent in character. The menstrual flow lasted three days. She has not suffered from leucorrhœa.

A year ago she noticed enlargement of her abdomen, but at no time has it been rapid. The abdomen developed symmetrically until about two months since, when she thinks it no longer increased in size. She experiences a sensation as of a body moving from side to side in the abdomen; has constipation, weight and pressure in the pelvis, back-ache, constant pain in the sides; suffers more or less with vesical distress, and has lost flesh and strength. The urine has a specific gravity of 1028, and contains neither albumen nor sugar. This patient gives a history of a steady increase in the size of the abdomen, extending over a year. This has been symmetrical, and is equally developed on either side of the median line. This tumor extends above the umbilicus, and the enlargement is very nearly that of a woman at the full term of pregnancy. The patient presents with this a rather emaciated appearance of the face, which is sunken, thin, and not that of a robust, healthy woman. The abdominal distention is more marked from the patient being so emaciated. In the consideration of a case of this kind we have to bring to mind the various conditions likely to give rise to abdominal distention. Among these are fibroid tumor of the uterus, pregnancy, hydramnios, ovarian growths and ascites, obesity, tumors of the liver, kidney, spleen, retroperitoneal growths, and, not unfrequently, enlargements of a portion of the abdomen from an accumulation of gas. All these possibilities should occur to you and be considered in the history of such a case before arriving at a diagnosis. Keeping this in mind, we arrive at our diagnosis by a process of exclusion. Thus, with reference to pregnancy, we exclude it because this woman has continued to menstruate regularly; the enlargement has extended over a long period of time; it has been accompanied with

emaciation and progressive loss of strength, while the physiological process would be generally accompanied with an improved appearance and increase of flesh. It is true, pregnancy may exist in a woman who continues to menstruate. With the majority of cases it does not. This patient presents the appearance known as *facies ovariana*. By the physical signs we recognize the size of the tumor, that it presents a distinct fluctuation, and that there is an absence of the resistance which characterizes pregnancy. A vaginal examination discloses the uterus resting beneath the tumor and unenlarged. The presence of fluctuation excludes the probability of this being a fibroid growth. Its situation excludes renal and hepatic growths. The distinct sense of fluctuation enables us to see that we have fluid contents, but it at once occurs to you how are we to determine whether this is free fluid in the peritoneal cavity or whether it is limited by the walls of the sac. If the fluid is free in the peritoneal cavity we would notice that the belly would be broader from side to side and more or less flattened, while this is prominent in a vertical direction. Placing the hand over the abdomen, we are able to feel and push the abdominal walls over the mass, the outlines of which can readily be determined. In percussing over this abdomen you will recognize there is dulness over the entire surface of this mass, and resonance when we pass above it or down upon the flanks of the patient. In ascites, or free fluid in the peritoneal cavity, we would find the point of greatest resonance would be over the summit of the distention, owing to the fact that the intestines, being filled with gas, float upward and lie in contact with the abdominal wall. Any change of position of the patient changes the line of resonance, while in this patient it remains unchanged.

Our patient has been carefully prepared for the operation; the steps have already been given you. We make an incision through the abdominal wall, picking up any bleeding vessels before the peritoneum is opened. The peritoneum is lifted up with two pairs of forceps, opened between them, and incised the length of the external wound. As it is separated you at once see a pearly, glistening surface, which indicates the wall of an ovarian cyst. Passing the hand over the cyst through the abdominal incision, we ascertain the absence of adhesions. Sponges are packed on either side to absorb any fluid that may escape from the opening. In the absence of a trocar, an incision is made in the sac, and the fluid is thrown out some distance. Pressure is kept on the external wall, the edges of the incision seized with forceps, drawn out, and the cyst rapidly removed. There has not been a

single adhesion found. The pedicle of the tumor is transfixed with a double silk ligature, which is tied in two halves. The ligature was tied so close to the cyst that in the removal of the latter it slipped off. It is necessary to religate the pedicle. We now proceed to the examination of the other ovary, as otherwise we might leave a tumor of considerable size in the abdomen, which would possibly necessitate another operation for its removal. This ovary contains a cyst, and, as the patient is a young woman and there is some healthy ovarian tissue surrounding it, I propose to cut out this cyst and leave the healthy structure remaining. I have split through it, permitting its contents to escape, and now scrape out the cyst wall, trimming the edges of the surfaces, which are united by a continuous suture. This ovary is watched and the stump of the other, to determine the presence of any bleeding. The cavity is packed with gauze sponges, and one is placed beneath the wound during the introduction of the sutures. Particular care is taken to include a portion of the aponeurosis in each suture. This is very important, as it forms the strongest portion of the future cicatrix. After introducing the sutures we remove the gauze and inspect the pelvis to make sure that everything is secure. There is no sign of bleeding, the sutures are tied, the wound thoroughly washed, dusted with acetanilid, and we subsequently use plain gauze and plain sterilized absorbent cotton for the outer dressing.

The cyst we find was a large one, whose foundation was a dermoid. In this dermoid is a large amount of fatty material, with a few hairs. Dermoid growths arise as a result of the folding in of the meso- and epi-blast portions of the tissues from which the skin-glands, hair, teeth, and bone-tissues are developed. The infolded tissues, subjected to some irritation, have developed abnormally, producing a large amount of sebaceous material and a few hairs. The quantity of this material, the hair, and the number of teeth found in such cysts, are frequently quite considerable. As many as a hundred teeth have been found, while an ordinary individual has but thirty-two. This is explained, however, by the fact that it is the result of irritation which has led to the formation of such structures. Nature, as you know, provides a large amount of material for her purposes. This material is stored up under abnormal irritation, and we have such deposits develop as are found in dermoid cysts. Some years ago I removed from a girl eleven years of age a tumor which occupied both ovaries, in which the fundus of the uterus was included. In this patient a double dermoid tumor was found which contained bone, hair, teeth, and at one point of the tumor appeared what seemed to be a fully

developed half of the superior maxillary bone covered with mucous membrane, presenting its alveolar processes, in which were its incisor and molar teeth. The teeth are sometimes attached to bone; at other times they are imperfectly developed; a large number of them appear as if thrown into a mass. We generally find large quantities of fat, such as you see in this cyst. Where we have such contents it is not desirable that the cyst should rupture into the peritoneal cavity, and, fortunately, that portion from which the fluid escaped was not the dermoid itself. I did not discover the solid portion of the cyst until after it was emptied, and this mass remained. In tumors of the ovary we have glandular, proliferating, dermoid, and parovarian cysts. The glandular tumors develop in the glandular structure of the ovary, while the papillary growths have their origin in the hilum. The latter are less rapid in their growth, but they become more firm and resisting in character, and as the tumor increases in size the papillary growths perforate its wall and lead to infection of the peritoneal cavity. The vegetations develop in the parietal walls over the surface of the pelvic viscera, and attain sometimes to considerable size. Ascites accompanies them, and the structures may be so involved as to render difficult or impossible an operation for their extirpation. If a mass can be removed, even though the peritoneum be infected, the removal seems to bring about a disappearance of the trouble. These growths are not malignant, for where the original mass is removed the secondary growths usually disappear. Such growths act very similarly to what takes place in tubercular peritonitis. Opening of the abdomen, the discharge of the fluid, and irrigation of the cavity generally lead to the recovery of the patient and disappearance of the tubercular disease.

THE MANAGEMENT OF LABOR COMPLICATED BY DEATH OR DISEASE OF THE FŒTUS.

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GENTLEMEN,—What has been called *fœtal dystocia* may be the result of several varieties of conditions, but these have this circumstance in common, that they all affect the fœtus. The dystocia—the abnormality of the labor—may be due to malpresentations, malpositions, and malformations, as well as to death and diseases of the fœtus, but it is only with the latter group of intra-uterine morbid states that I have now to do. It will be well to consider, first, the influence of fœtal death upon labor, and then to look at the effects produced by some antenatal maladies along with the appropriate methods of management in such cases.

There seems to be good reason for believing that fœtal death *per se* rarely increases the difficulty of labor, although it may to some extent magnify the danger of septic infection. Doubtless one often hears of cases in which dead fœtuses have been born after greatly prolonged and difficult labors, but it is safe to say that most often the fœtal death has been the result, not the cause, of the delay in parturition. The popular notion that a dead infant is born with difficulty is probably founded upon the old belief that a child makes its way into the world largely by its own exertions, and that therefore when these exertions are wanting its advent must be slow. It is now known that save to a small degree by its weight the fœtus does not expedite its own expulsion from the uterus. A dead infant may not act as a dilating agent so well as a living one, but then the softness and compressibility of the dead fœtal structures which lead to this result also render a smaller degree of dilatation quite sufficient for the passage of the child. What, therefore, is loss in one direction is gain in another, and probably in

this particular the advantage remains on the side of ease rather than of difficulty in birth.

There are, however, some rare conditions in which foetal death, without concomitant foetal disease or deformity and without any defect in the maternal passages or inefficiency in the maternal powers, does lead to delay in labor. These unusual conditions are rigor mortis in the foetus and enlargement of the body from the emphysema of putrefaction.

With regard to antenatal rigor mortis it must be admitted that it has but rarely been observed, a circumstance depending largely upon the fact that it has either not yet come on or has already passed off at the moment of birth; but when it has happened that post-mortem rigidity in the foetus has existed during labor, then in some instances there has been delay in the expulsion of the child. The delay has been ascribed to the fixed position of the limbs of the infant, which prevents the occurrence of the normal mechanism or renders difficult the performance of version or the extraction of the body. I have met with two cases of antenatal rigor mortis, but in neither was the labor prolonged, although in one instance the pregnancy had gone to the full term and the rigid child was also large. It is doubtful whether delay from this cause will ever call for interference on the part of the obstetrician. It seems likely that the uterine force will be sufficient easily to overcome the rigidity, especially since antenatal rigor mortis is feebly developed on account of the immature state of the foetal muscles.

Another condition in which death of the foetus causes delay and difficulty in the confinement is that in which air gains entrance to the uterus and to the amniotic sac, either when the infant dies or soon thereafter. As a result of this circumstance putrefaction instead of maceration attacks the foetal tissues, and the putrefactive gases distend both the uterus of the mother (physometra) and the body of her unborn child (emphysema). It may then be necessary to puncture the abdomen or thorax of the foetus in order to diminish its size, and of course the presence of intra-uterine putrefaction would call for strict antiseptic precautions in the form of both vaginal and uterine douching.

Although it is exceptional for foetal death alone to give rise to difficulty in delivery it must not be thought that it does not increase the danger of the case. There is always an extra risk of septic infection when a macerated foetus along with a quantity of liquor amnii containing meconium is passing through the genital canals; and, under these

circumstances, it is well to make a routine practice of giving antiseptic vaginal injections during labor and an intra-uterine one immediately afterwards.

One of the saddest experiences in midwifery practice, both for the doctor and his patient, is the death during delivery of a large finely-developed infant, an infant whose only fault is its large size or advanced ossification. When this occurs not once but several times in succession, the grief of the parents is really great. Such a case I met with recently. The mother was a healthy woman with a normal pelvis; but all her pregnancies, four in number, had ended in the birth of dead children. In her last confinement she was under the care of my friend Dr. Sloan, and every precaution was taken to insure a happy conclusion to the labor; but again uterine contractions did not supervene till three weeks after the full term, and the child, which was extracted by means of forceps, was still-born, and could not be resuscitated. Dr. Sloan sent to me the infant, which I now show you, for dissection. It was a male, weighing between nine and ten pounds, and measuring fifty-six centimetres in length; in appearance he resembled a baby of two or three months rather than a new-born infant. Further, the head as seen from above was more nearly square than ovoid, and was abnormally well ossified, the anterior fontanelle being only about the size of a three-penny piece. Dissection revealed several intra-cranial hemorrhages and fracture of the occiput along the line of the cartilaginous (in this case ossified) "hinge."

This second foetus, which I now exhibit (*vide* Fig. 1) presented a somewhat similar state of affairs. It was, as regards the birth of the head, an easy forceps case, but delay occurred from the breadth of the shoulders, and the child, a female, was still-born. The head was abnormally well ossified; there was a spoon-shaped depression on the right frontal bone, under which was an intracranial hemorrhage, and blood was also found at the base of the brain and around the medulla.

In both of the cases which I have mentioned the high degree of foetal development was the cause of infantile death. With regard to the treatment in the first case I recommended the induction of labor at or shortly before the full term of pregnancy, should the patient again fall in the family way, and this I did with the hope that a less mature infant might pass living through the maternal passages. It is a rare occurrence, however, to be able to predict the birth of an abnormally large child, and therefore one is usually confronted by difficulties when labor is already in progress. Then, as in the second case, recourse is

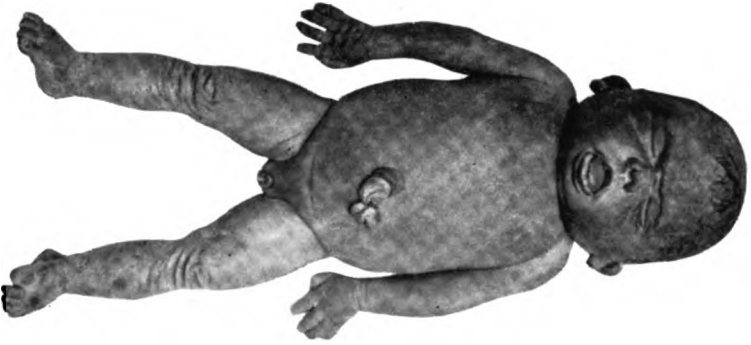


FIG. 1.—Abnormal development of the foetus, causing its death in delivery.

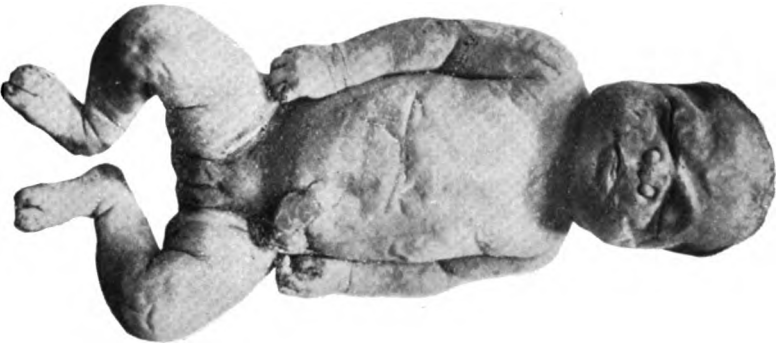


FIG. 2.—Anasarca in a foetus born dead after a tedious labor.



FIG. 3.—Sacral meningocele, exomphalos, club-foot, and imperforate anus in a still-born foetus.

usually had, in the first instance, to forceps, and, later, to manual traction or the use of the blunt hook in the axilla of the infant. Cases have also occurred in which craniotomy, with or without evisceration, was necessary before the child could be extracted. In such instances, and with a foetus whose heart is still beating, it would be wise to ask the parent's consent to symphyseotomy in order to try to save the offspring. In cases such as the first one to which I have referred, this consent should be easily obtained, for the mother who has brought child after child to maturity only to lose it at birth would willingly undergo a little extra risk to secure a living baby.

Whilst it has long been recognized that excessive ossification of the foetal head may seriously retard labor, it is only within recent years that it has been suggested that imperfect ossification may have the same effect. In the one case the head does not mould enough, in the other it moulds too much, and in both instances the physiological dilator is imperfect and the proper mechanism is interfered with. Of course I do not now refer to hydrocephalus, but simply to incompletely ossified heads of normal size. The uterine efforts come to be lost in squeezing the head into various shapes, whilst its onward progress through the pelvis is greatly delayed. In such instances it is well with the hand to dilate the vagina and cervix, and for this purpose it will be convenient to anoint the parts thoroughly with an unguent containing cocaine, vaseline, and carbolic acid. Should this fail, recourse must be had to forceps, and great caution must be used not to compress the infant's head too much.

Foetal diseases vary greatly in the effects which they produce upon labor, for some, such as intra-uterine heart-disease, have no appreciable influence, whilst others, such as foetal ascites, anasarca, and tumors, lead to conditions which tax to the uttermost all the powers of the obstetrician before delivery is accomplished. Yet other diseases, such as foetal ichthyosis, sometimes interfere with the normal progress of parturition and sometimes do not.

As a type of the morbid foetal states which seriously complicate labor I may mention general dropsy. I show here photographs of some six or seven examples of this antenatal malady (*vide* Fig. 2), and you will note the general anasarca and the distended condition of the abdomen. Abnormal presentations are common in such cases and labor is usually greatly delayed. Sometimes the natural efforts are sufficient to expel the dropsical infant, but most often they are not. The difficulty is easily explained when the large size of the infant is borne in mind, and when it is further remembered that hydramnios

with its weakening effect upon the uterine muscle is a frequent concomitant condition. The usual history given is that the head or a foot is expelled from the passages, and then further progress is checked by the wedging of the foetal body in the maternal canals. Traction, manual or instrumental, upon the protruded part sometimes overcomes the resistance; but in making traction it has to be remembered that there is great friability of the foetal tissues in this disease, and that one may very easily drag away the head or a limb. In a great many of the recorded cases it has been found necessary to open the abdomen of the infant either directly, as in breech cases, or indirectly through the thoracic cavity in cephalic presentations. In certain instances paracentesis abdominis has been insufficient, and the obstetrician has been compelled to eviscerate the thorax and abdomen as well.

Of course all these measures mean the killing of the infant, and doubtless in most instances the child could not at any rate long survive the birth; but there are cases in which the dropsy is not excessive, and in these it is matter for consideration whether a chance ought not to be given to the child by (*e.g.*) the performance of symphyseotomy. The third stage of labor is usually rendered difficult by the large size of the placenta (which is oedematous), and manual extraction is generally necessary. It therefore follows that antiseptic precautions are needed at every stage in a labor so greatly complicated, instrumentally and manually.

What has been said of general dropsy holds good also with regard to foetal ascites and distention of the foetal urinary bladder: the obstetric history of such cases is similar, and the means taken to overcome the difficulty in labor have been of the same kind. Generally, paracentesis abdominis has proved sufficient to allow the expulsion of the infant, for the very evident reason that by opening the abdomen the fluid which is obstructing the passage of the child is permitted to escape, and so the sole element of difficulty is removed. In this respect, therefore, these cases are easier of management than are those in which general dropsy of the foetus is present.

The presence of tumors, cystic or solid, on some part of the body of the unborn infant is another condition which may cause dystocia. I show you now a foetus with a large sacral meningocele, and a number of malformations, including exomphalos, club-foot, and imperforate anus (*vide* Fig. 3). In this case, which occurred in the practice of Dr. C. B. Ker, the head of the child came down easily to the perineum; but forceps were required for its delivery, and it was then found that the delay had been due to a large sacral meningocele (now much

shrunken) and to the attachment of the abdominal viscera directly to the membranes, so that foetus and placenta came away together and caused some hemorrhage. In such a case it is a matter of great difficulty to adopt an adequate plan of treatment, especially as the cause of the obstruction is hidden and is often even out of reach of the examining fingers. In the instance referred to, the management would have been easier had the foetus presented by the breech instead of by the head, as then the meningocele would have been easily felt and could have been tapped. Similarly cystic tumors on the head are most satisfactorily dealt with when the presentation is cephalic, for then they can be reached and punctured. The general rule of treatment in all such cases is to diminish the size of the obstructing tumor; this is easy of accomplishment if the mass is cystic and within reach of the fingers, very difficult when the growth is solid and high up in the uterus, or within the body of the foetus,—*e.g.*, cystic kidneys or tumors of the liver. In the last-named group of cases evisceration of the abdomen is often necessary, and may require to be performed through the thorax, at no time an easy task.

Perhaps the greatest difficulty that is met with in the management of labor complicated as has been described is due to the difficulty in the diagnosis. It is on only the rarest of occasions that we are able before the commencement of parturition to ascertain the existence of the foetal morbid states which prove so troublesome at the time of the confinement. If a diagnosis could be formed, the question of the advisability of the induction of premature labor would have to be faced; in many instances nature herself brings this end about, the small size of the immature foetus permitting safe delivery even with the increase in bulk due to the tumor or the dropsy. When, however, labor does not supervene till the full term, and when it is only after some hours that a foetal cause of delay is suspected and recognized, we are compelled to take such measures as are possible for the safety, in the first place, of the mother, and these consist usually in the destruction of the child. It is an open question whether it is not advisable under such circumstances to endeavor by symphyseotomy to deliver the woman of a living infant. It will be objected that the child is diseased, and that, therefore, its life need not be fought for; but it is doubtful whether we are justified in making such a decision, certainly it is fair to believe that some foetal maladies which obstruct delivery might be cured if the child were once safely removed from the uterus. It seems also that the risk to the mother could not be greater than that which she runs from prolonged instrumental manœuvres carried on in her vagina and

uterus. The Cæsarean section has already been successfully performed¹ for the delivery of joined twins, and in comparison therewith the operation proposed is both simpler and safer. At any rate, the general tendency of modern obstetric teaching and practice is in the direction of diminishing the number of conditions under which it is allowable or justifiable to kill a living foetus. In my opinion this principle should guide us in our treatment of such cases as we have been considering.

¹ Croston (J. F.) and Clarke (M. D.), *Boston Medical and Surgical Journal*, p. 610, December 21, 1893.

VAGINAL HYSTERECTOMY FOR UTERINE MYOMATA; MORCELLATION.

CLINICAL LECTURE DELIVERED AT THE KENTUCKY SCHOOL OF MEDICINE
HOSPITAL.

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GENTLEMEN,—Yesterday afternoon you saw me perform a vaginal hysterectomy for uterine myomata upon a woman, about thirty-five years of age, who is the mother of five children, the last of which was born seven years ago. She weighed about two hundred pounds, but her vagina was very small. The depth of the uterus was over five inches, and the organ was correspondingly enlarged. The operation was prolonged because of the difficulty in removing the uterine myomata *per vaginam* in so large a woman with such a small vagina. Had this woman weighed about one hundred and ten pounds, with a large vagina, I could have removed the uterus and the tumors in half the time, because there would have been a better field in which to work; the larger the vagina the more easily you can work in doing a vaginal hysterectomy, and the danger of injuring vital structures is correspondingly lessened; and in cases of uterine myomata in thin women an assistant may bear down from above the pubes, forcing the tumor down in the pelvis, which aids the operator very much. While vaginal hysterectomy is, I am sure, the best operation that can be performed in small uterine myomata, where the uterus and the tumors can be removed by bisection or morcellation, it requires an extensive knowledge of surgical work, and particularly the surgical technique applied to this operation and the best instruments that are used in performing it.

You should not attempt vaginal hysterectomy for uterine myomata until you have at your command every instrument and every facility that is necessary for the completion of the most perfect work. You want retractors that can be held firmly and steadily without tiring the assistant, so that every part of the operative field is always within view ; and the best that I have seen for this purpose are the retractors of Péan, such as we used yesterday. You should have a dozen strong hysterectomy clamps, preferably Péan's or Wathen's ; and you also want about four vulsellum forceps, not large, but strong and unyielding. You want a sharp hook and a long Second corkscrew to pull down parts of the uterus and tumor as you proceed in morcellation, or, finally, to fasten in the upper portion of the fundus and pull it down through the anterior opening between the bladder and the vagina or back through Douglas's pouch, whichever is most easily done. You want strong, well-made scissors that will cut nicely around the cervix, separating the vagina, and will also cut into the myomatous tissue when you have gone higher up, coming in contact with the tumors. You should have several knives,—better long-handled ones,—because we find cases where it is very difficult to cut with scissors, but where a knife will work nicely. You want irrigators attached to both a bichloride solution and plain sterilized water, so as to wash away every particle of unclean matter that may be in the field of the operation.

Dr. Charles Jacobs, of Brussels, uses the thermo-cautery to divide the vaginal wall from the cervix. I have tried this method and find that the hemorrhage is about as great after using this means of dividing the vagina as after using scissors or the knife ; and as a lessened amount of hemorrhage is the only advantage that can be claimed for the thermo- or galvano-cautery, I see no reason why we should not use scissors or the knife.

When the field of the operation is thoroughly cleansed and brought into view, you should proceed to divide the vagina from the cervix ; in doing this you must hold the cervix firmly with the vulsellum forceps, pulling the uterus down as far as you can and then separating the vagina posteriorly or anteriorly first, as may be indicated by the conditions present. In one instance you will find that you can proceed to better advantage by first incising the vagina posteriorly, then going in front and incising the vagina anteriorly just below the bladder, and *vice versa*. If the uterus is large because of the myomatous tumors, it is well to divide the vagina about half an inch on each side of the cervix below and behind the base of the broad ligaments, so as to give more space when you are operating, for if you

simply divide the vagina closely around the cervix, unless the cervix be very large, the opening will be so small that you will have difficulty in performing morcellation. Having the cervix held firmly with the forceps, having with scissors or the knife separated the vagina all around from the cervix, having made a little cut in the vagina on each side and just behind the base of the broad ligaments, you must proceed to enucleate all structures, both posteriorly and anteriorly, from the neck of the uterus. You can usually do this better by means of your fingers, always hugging the uterus or tumor, because you can do no injury by such enucleation, and you may do serious injury to the bladder, the ureters, or possibly to the rectum, if you enucleate in a direction away from the uterus. If you find that you cannot enucleate well with the fingers, and that apparently the tissues are separating too much in the direction of the bladder, take your scissors and cut down next to the uterus and push away the tissues connected with the uterus so as to get nearer to this organ and further away from the bladder. Sometimes the tissues are so tough here that you cannot push them up until you have cut extensively into the tough structures with the scissors, so that you may then run your finger under the tissues and continue your enucleation, remembering always that the fingers are the best guides, cutting just as little as you can. Separate the tissues above as high as you can; also enucleate out towards the broad ligaments, pressing the tissues away from the uterus as far as possible in front and behind, until, finally, you have enucleated the uterus posteriorly and anteriorly as far as you can reach. You have possibly entered the peritoneal cavity through Douglas's pouch posteriorly, or have injured the peritoneum through the utero-vesical pouch anteriorly,—perhaps in one or perhaps in both of these places. As the blood-vessels enter the uterus upon the sides through the broad ligaments, you must remember that here is where we have to control hemorrhage. Before you attempt to clamp the broad ligaments and include the uterine arteries you must push the ureter far enough away upon each side to prevent its being included in the clamp. You must remember that the ureter comes at this point within half to three-fourths of an inch of the uterus, and goes directly under the uterine artery, so that by a little carelessness you may include it with the uterine artery; but to show that this can be avoided in nearly every instance it is only necessary to say that in the experience of the surgeons who have done much of this class of work the ureter has been very seldom injured, and I have never injured it. When you have clamped both sides as high as you can, then with the scissors divide the broad ligaments between your

clamps and the uterus, but as close to the uterus as possible. Where you are operating for malignant disease, you should get as far away from the uterus in making the vaginal incision and in dividing the broad ligaments as you can without wounding the ureters. You can now pull down more firmly, bringing the uterus nearer the vulva; then you may enucleate higher and put on a second clamp above the first, reaching far up upon the broad ligament. Remember that after you have applied the first clamp, which includes the uterine artery, and have divided the tissues between the uterus and the clamp, a second clamp will not injure the ureters; but you must in this instance watch the intestines to be sure that a loop be not included in your clamp. Finally you have pulled the uterus down as far as you can, you have separated it from its attachments as far as it is possible, but the uterus is so large that it will come no farther, and you find that you cannot enucleate it in its entirety and take it away as you have often seen me do for malignant disease where the organ was not much enlarged; then you must avail yourselves of means that will lessen the size of the uterus so that it may be brought through the vulva.

There are a variety of operative measures that may now be adopted, all in a degree similar, but different in detail. You may in many instances where the uterus is not very large and the vagina is capacious bisect the uterus, just as you saw me attempt and nearly complete yesterday. This may be done by placing a vulsellum forceps upon each side of the cervix, pulling firmly downward, and with scissors dividing the cervix antero-posteriorly until you reach the body; then divide with scissors or with the knife the anterior wall of the uterus, then the posterior wall, so that finally you have divided the uterus and the tumors into two halves; either one of which may then be pulled down and out of the vulva, so that you may reach the attachments above and clamp the broad ligament from above outside the ovaries and tubes, including the ovarian artery; then you may cut that half of the uterus from its attachments between the uterus and the forceps. You may then proceed upon the opposite side in the same manner. After you have clamped the uterine artery you will have but little hemorrhage in bisecting the uterus if your assistants pull firmly upon the uterus by means of forceps.

In the case operated upon yesterday bisection could not be made complete because the uterus was so large and extended so high up that we could not pull it down sufficiently low to bisect it completely. You must always, in cutting with scissors or with the knife, protect the intestine or bladder by the sense of touch and by sight; so, when you

are bisecting a uterus, if you are well up to the upper part of the fundus, so high that you cannot see nor feel whether there are coils of intestine adherent or lying directly over it, you must bisect no farther until you have by some means brought the uterus lower in the pelvis so that you can see or feel and be certain that no intestine is injured. In this case, after the uterus had been bisected about two-thirds of the way up the body, I proceeded to cut out sections from the anterior wall, getting hold of some of the myomatous growths in the walls and pulling them away, so that gradually the uterus was lessened in size until it came lower and lower, and was finally brought out through the utero-vesical opening; then it was entirely bisected, the left side clamped and removed, and the right treated similarly. If these tumors had been larger I would have proceeded practically after the same fashion, bisecting first as far as I could, dividing the anterior uterine wall, finally reaching the tumors and catching hold of them with forceps and corkscrews, and with scissors or knife cutting out parts of the uterus and myomatous tissue, gradually getting higher and higher until the uterus could have been pulled down and out of the vulva. But in morcellation you must be careful not to loose your hold upon the uterus or tumor; when you take a traction forceps and get hold of a portion of the tissue high up and pull it down and cut it away with your knife or with scissors, before that part is entirely separated you must with another forceps go higher and get hold of the uterus, otherwise, when you have cut away the portion pulled down, the uterus at once recedes out of your reach. When you get a myomatous uterus down in the pelvis, so that you can cut it away piece by piece, never let it get out of your grasp, and here is where you will need several forceps, because, while you have one on each side of the uterus, you will have another pulling down the part that you are cutting away, and then you will want still another pair to get hold of tissue above the one that holds the piece that you have cut away.

By this means, watching carefully the bladder, the ureters, the bowels, so as to avoid injury of any of these structures, working persistently and determinedly, you will finally be able to remove through the vagina uterine myomata as large as a foetal head or larger, provided the vagina is of the average size. You cannot, however, in all cases remove tumors of this size where the vagina is small, and where the woman is very fleshy. When the patient is fleshy you will lose the valuable aid of pressure from above that is so easily applied in women who are small and who have thin abdominal walls. After you have separated, enucleated, and cut away the uterus and all the

tumors, you must look carefully before dressing to see that there are no important vessels that are bleeding. You may have a little oozing from the vaginal surface or from the connective-tissue surface, that will not amount to much, and that may be easily controlled by tamponning with iodoform gauze; but if there is a bleeding artery that spurts so it can be seen, you must not depend upon pressure from a gauze packing alone, because it will not succeed, and your patient may bleed to death. You must search carefully until you get hold of the bleeding vessel, and then control the hemorrhage by the application of another pair of forceps or by a ligature. When this has been done, and when you have cleansed the vagina of blood, etc., you are ready to apply the dressing. Place strips of gauze over the upper ends of the clamps to prevent injury to coils of intestine that might fall down and might otherwise become damaged by the forceps. When you have covered the upper ends of the forceps, your assistant pulling the forceps down gently, you press some gauze lightly into the vagina between all the cut surfaces. In the mean time you will be surprised to see how rapidly the opening that you have made, and through which you have removed the large myomatous uterus, will contract, apparently trying to shut off the abdominal cavity from the external world. You then place some gauze gently between the forceps and the broad ligaments so that you have covered all the raw surfaces; but if you have, or fear that you will have, much oozing, you must put in more gauze, pressing it down a little more firmly; finally you must take hold of every piece of gauze that has been inserted, and be sure that no piece can get beyond your reach when it is necessary to remove it. When you have tamponned above all you wish, then you must wrap gauze around the forceps and between them, shutting off the interior from the external parts, so as to prevent pathogenic germs going through the vagina to the peritoneal cavity. Cover the handles of the clamps with several layers of sterilized gauze, and then put the patient in bed on her back, and under the forceps put gauze or cotton covered with gauze; and it is well to put under this a water-bag with a clean towel over it, for this gives the forceps a support which prevents too much suffering and too much injury to the structures by the weight of the instruments. The woman should be kept in bed and the urine drawn, or a self-retaining catheter introduced. In thirty-two to forty-eight hours the forceps may be removed and most of the gauze, but not the strips that extend over the ends of the forceps. In removing the gauze do so gently, with a light reflected into the vagina so that you may watch everything, and finally, when you unclasp the forceps, you may have

the field exposed so that you can see if there is any bleeding. You gradually pull the forceps open, watching it carefully, and if there is no bleeding, you gently take it away, and so on one forceps after another, until they are all removed. If bleeding is discovered, you should at once reclamp the forceps and leave them intact until the following day. When all the forceps are removed you should leave one or two little strips of gauze lying above on the wounded surfaces. By this time the wound has contracted so nearly together that the surfaces press upon the gauze, and the peritoneal cavity is very soon absolutely shut off from the vagina; but if you at this time, thirty-six or forty-eight hours after the operation, pull away the gauze from above, you may pull down a coil of intestine or some of the omentum, as I have done on one or two occasions. If you will leave the gauze from three to five days, then gently pull it away, you will find by that time that nature has thrown out a protecting layer of lymph above so that the intestines and omentum are shut off.

You now wash out the vagina every day with bichloride solution, not going too deeply with your nozzle; in six or eight days allow your patient to sit up; in two or three days more she may begin to walk, and in two weeks, if she does well, she can, as a rule, leave the hospital and return to her home.

I will in my next lecture bring up a number of cases that we have operated upon here, and will complete the subject of vaginal hysterectomy of every variety for the relief of troubles in which the operation is indicated. I have already performed before you this year operations in vaginal hysterectomy for nearly every condition for which the procedure is indicated, and I believe about the best way of impressing upon you the practical significance of this subject, so that you may understand it more easily, is by taking up the different cases operated on and lecturing upon them.

THE TREATMENT OF A FIBROID TUMOR OF THE UTERUS BY LIGATING THE BASE OF THE BROAD LIGAMENT; SHORTENING OF THE ROUND LIGAMENTS FOR RETRODISPLACEMENTS.

CLINICAL LECTURE DELIVERED AT THE CHICAGO POST-GRADUATE MEDICAL SCHOOL.

BY FRANKLIN H. MARTIN, M.D.,

Professor of Gynecology in the Post-Graduate Medical School, Chicago, Illinois.

GENTLEMEN,—The first two cases which I wish to show you to-day, while not usually classed as major operations, must be of very great interest to you as general practitioners, especially to those of you who are called upon from time to time by your brother practitioners, because of your recognized superior skill in that branch, to do such surgery as the hospital facilities outside of a large city will permit. A few years ago, to such cases as the first, aside from a major operation with a certain percentage of fatality, we could only promise endless suffering until death relieved her. The second case involves a point in surgery which is at present unsettled,—namely, the propriety and best method for anterior fixation of the uterus for retrodisplacement.

Both cases are extremely interesting to me because they afford an opportunity to show you Martin's operation for fibroids of the uterus, and Martin's operation for retrodisplacements, or shortening of the round ligaments without buried sutures or ligatures.

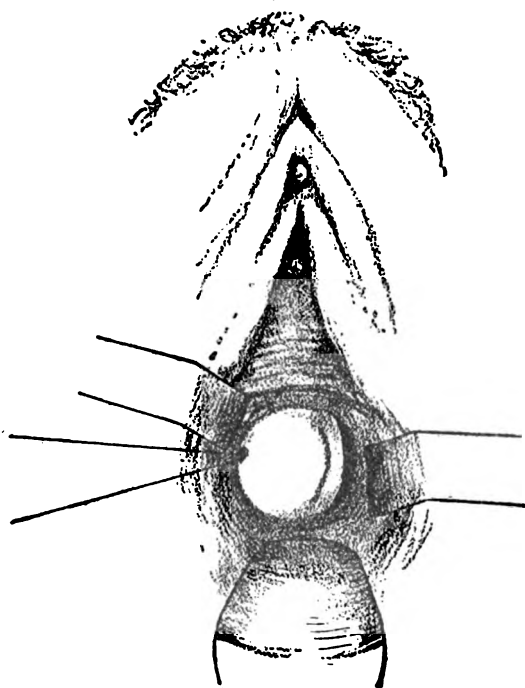
CASE I.—Mrs. R., aged thirty-six, married eighteen years, has had three children and five miscarriages. The first miscarriage occurred about ten years ago, since which she has always aborted between the sixth and twelfth week of pregnancy. She gives no history of peritonitis following any of these abortions. Puberty occurred at the age of thirteen, and menstruation has been regular and normal, except during pregnancy, up to about two years ago, when the menses became quite painful and more profuse than normal, until now the flow lasts between seven days and two weeks. The patient has not that exsan-

guinated appearance that one would expect with this constant depletion, but tells us she has lost considerable flesh during the last twelve months. On bimanual examination, I find the perineum slightly lacerated. The uterus is in an almost normal position. It is about three or four times the normal size, and is hard and fibrous. I can feel a small nodule on the left anterior portion of the fundus, which is probably the nucleus of a small subperitoneal fibroid. The tubes and the ovaries are practically normal.

The diagnosis which we have established is interstitial fibromyoma of the uterus. Now as to the treatment. Instead of the operation I propose to do here, the question naturally arises in your mind, Why not remove the uterus completely? The patient looks as if she could stand the operation. The tumor is not too large, nor are there any dangerous adhesions to complicate matters. Why not remove the uterus? That is precisely what I thought and advised when I first saw the case, but the woman absolutely refuses to submit to such a procedure. The indications are most decidedly for removal, but this we cannot do without the patient's consent. Then you will ask, Why not use electricity? This I consider a typical case for treatment by electricity, as you will see if you read an article by me on this subject, which appeared in the *Journal of the American Medical Association*, March 28, 1896. I have used electricity in this case for a couple of months, and with decided improvement as far as the symptoms are concerned, but the patient is not in a position to take regular and systematic treatment such as is necessary for any form of routine treatment. To accomplish anything in such cases it is necessary to see the patient every second or, at the furthest, every third day. Now, a word as to the method of application in case electricity is practicable. The object in view is to pass through the tumor as strong a galvanic current, for its electrolytic effect, as can be comfortably borne by the patient and without destruction of tissue at the point of contact of the intra-uterine electrode. A large abdominal electrode, preferably Martin's membranous electrode, is placed on the abdomen. A plain copper electrode is placed in the cavity of the uterus. To this the positive pole of the battery is attached, while the negative is attached to the abdominal electrode. A current of from seventy-five to one hundred and fifty or two hundred milliamperes, according to the extent of exposure of the intra-uterine electrode, is now turned on and allowed to continue for five minutes. Such treatment I have used in this case for a comparatively short time, and with marked improvement in every symptom; but the woman's circumstances being such that

she is unable to follow up the treatment, she has at my suggestion consented to submit to the minor operation of vaginal ligation of both broad ligaments, with the promise of immediate relief, and possibly permanent cure. The patient is prepared in the same manner as for vaginal hysterectomy. That is, the woman is sent to the hospital two days before the operation and the bowels thoroughly cleaned by repeated laxatives and copious enemata. The field of operation is prepared by shaving, scrubbing with green soap, and repeated sterilized and antiseptic vaginal

FIG. 1.



Retractors in position, and the scissors inserted at that part of the vaginal vault at which the broad ligament of the uterus is to be attacked and the uterine artery ligated.

douches. Two broad retractors, placed one above and one below, are held by my assistants, so as to expose the cervix and vaginal vault perfectly. With the scissors I now make an incision about one or two inches in length to one side of the cervix and at right angles to the broad ligament (Fig. 1), the cervix being drawn down and to the other side by means of a guy-stitch of strong silk, which also serves to hold a small plug of gauze in the uterus. Now, with the index-finger I peel up the vaginal wall and bladder from the broad ligament anteriorly

for about two inches (Fig. 2); then posteriorly from the broad ligament to the same height. We must be careful to push the ureters out of the way laterally. Now, with one finger in front and one behind the broad ligament, I can feel the uterine artery pulsate quite distinctly (Fig. 3). We must be careful not to keep too near to the uterus, else we will not get the main trunk of the artery, which, it must be remembered, divides into several branches at about one inch from the uterus. Now I pass a curved pedicle-needle, armed with No. 10 silk, through the broad ligament well above the artery, using the index-finger for a

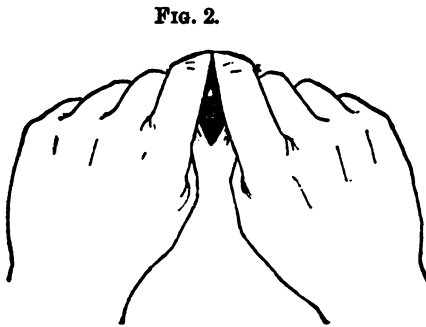


Fig. 2.
Palpation of the broad ligament.

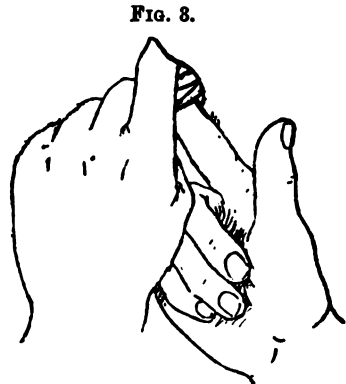


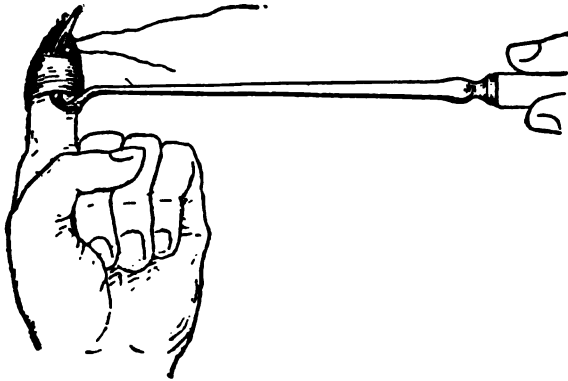
Fig. 3.
Method of detecting the pulsation of the uterine artery.

guide (Fig. 4). On tying this firmly (Fig. 5), you can see that the cervix pales considerably. The opposite side is treated in the same manner, and the incisions are closed with catgut (Fig. 6). From the appearance of the cervix, I think none of you will doubt that this operation will materially affect the flow and check the growth of the fibroid uterus. The vagina is now packed with iodoform gauze, which should be removed in twenty-four or thirty-six hours, and the patient given antiseptic and sterilized vaginal douches. The patients are usually able to go home in one week or ten days after this operation. They suffer little pain or shock, and frequently are unable to believe for some time that anything has been done.

The idea of this operation first occurred to me about four years ago, while examining a patient who had a large fibromyoma of the uterus. I could then feel, and no doubt you all often feel, the same thing,—the enlarged uterine artery pumping blood into the tumor. It seemed superficial, and I argued why not tie this off, and thereby shut off two-thirds of the blood-supply, check the growth of the tumor

by depriving it of nutrition, and probably reduce it considerably in size? You ask, will not the collateral circulation be established in a short time? It will not be established readily from the ovarian artery,

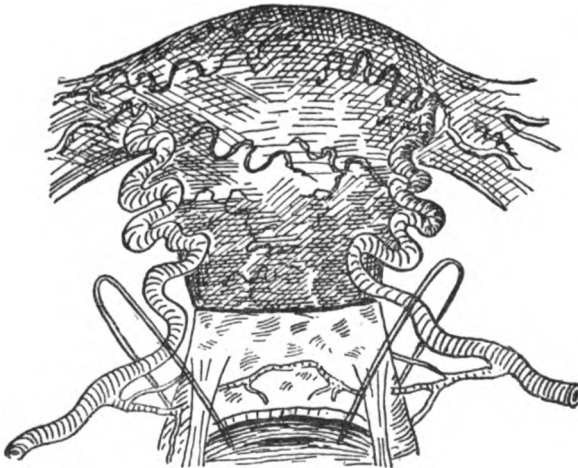
FIG. 4.



Ligation of the uterine artery.

which is a single channel arising and controlled by a nerve-centre far from the uterus. It will not be established from the uterine artery, because the trophic nerves to that portion of the uterus are included in

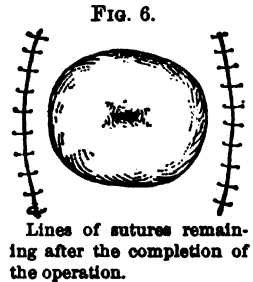
FIG. 5.



Normal relation of the uterine arteries to the broad ligament.

the ligature, cutting off all communication or calls for blood from that part. My first case was a success, and my theory apparently correct. I have performed the operation many times since, and with the

most gratifying results. There is much in favor of this operation in otherwise inoperable cases of uterine fibroids. The patient practically takes no risks as regards life. We do not enter the peritoneal cavity. If it happens that the operation is not an entire success, it does not interfere with any subsequent treatment. So far I know of no case in which any further operative procedure was necessary. The relief has been immediate, and so far with every indication of being permanent, and what more could be asked from any procedure? We know that fibroids are benign tumors, and seldom cause death if left alone. If we remove them we are sure of a certain number of deaths in every hundred cases; therefore it is a question in my mind if it would not be better surgery to do this operation more and complete removal less.



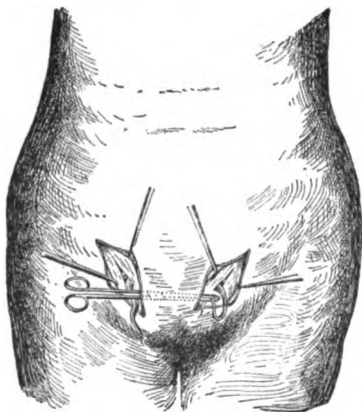
SHORTENING OF THE ROUND LIGAMENTS FOR RETRODISPLACEMENTS.

CASE II. is one in which I wish to show you something new in a modification of Alexander's operation for retroversion. Mrs. L. D., aged thirty-three, has had two children and two or three miscarriages. The last miscarriage occurred about a month ago, and at the sixth week of pregnancy. There is no history of peritonitis. Puberty occurred at fourteen, and menstruation has been regular and normal until after the birth of the second child. The symptoms complained of since then are painful and profuse menstruation, the pain being present for two or three days before the flow came on, and being somewhat relieved when the flow started. Leucorrhoea has been constant between the menses. Besides these, the patient has severe headaches, back-aches, bearing-down pain, and chronic constipation.

On digital examination we find a bilateral laceration of the cervix, which is enlarged, rolled out, and eroded. The uterus is retroflexed, but not tied down by adhesions. The uterus is larger than normal, because of the constant passive congestion and metritis and endometritis. The tubes and ovaries are practically normal. The treatment I propose and proceed to do here is to first thoroughly curette the cavity of the uterus, repair the cervix, and then do my modification of Alexander's for the retroversion. Before attempting to curette, be sure you dilate thoroughly. Use Goodell's rapid dilator, and, if introduced deep into the cavity of the uterus before making pressure,

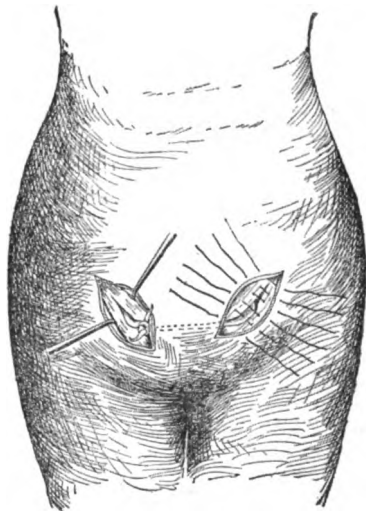
there will be less danger of increasing the tear in the cervix. I use a curette which is not too sharp, going over the cavity of the uterus systematically two or three times, using constant irrigation, and withdrawing the curette at every second or third stroke to remove the *débris*. I now pack the cavity well with strips of iodoform gauze, soaked in one to one hundred bichloride solution. This I remove, and put in its place a dry strip packed loosely for drainage. This gauze will be removed in twenty-four hours. I prefer Emmet's operation for such a laceration of the cervix as this. I first remove the cicatricial plug of tissue with Skene's hawk-bill scissors. It is the easiest and most rapid method I know of removing this plug, and if any cicatricial tissue remains after the first bite it can be readily removed with the tenaculum and scissors, as you see I am doing here. I now place

FIG. 7.



A modification of Alexander's operation.

FIG. 8.



Application of the sutures in a modification of Alexander's operation.

three or four silkworm-gut sutures in each side, tie them securely, and we have a first-class looking cervix result. The vagina is packed with gauze, and we turn to the retroversion. An incision about two inches in length is made over the inguinal canal, precisely the same as in Alexander's method. We separate the tissues down to the external ring, where we come upon the end of the round ligament. This I free from its bed, and go down on the ligament of the opposite side in exactly the same manner. The ligaments are now cut free at their

distal attachments at the pubes, and drawn well down through the canal and external ring until the uterus is felt well up against the anterior abdominal wall. A long forceps is now passed through the tissues, just above the pubes, from one incision to the other, above the tendon of the rectus abdominis muscle, and below the skin and subcutaneous tissues (Fig. 7). The round ligament of one side is now seized in the grasp of the forceps, and drawn through and securely tied to its fellow of the opposite side. The incisions are now closed, and the operation is completed without any buried ligatures. This, when we have no absorbable ligatures or sutures which we can depend upon as absolutely sterile, is a decided advantage over the old method (Fig. 8).

As to other operative means for treating retroversion, I frequently resort to Kelly's or Fowler's new operation, but only in women past the menopause or in women from whom I have removed the appendages. I do not consider either of these two operations indicated when there is any possibility of pregnancy following.

THE IMPORTANCE OF PELVIC MEASUREMENTS IN PREGNANCY; TERTIARY SYPHILIS; TUBER- CULAR VERTEBRAL DISEASE; CANCER OF THE UTERUS, ETC.

CLINICAL LECTURE DELIVERED AT THE KENTUCKY SCHOOL OF MEDICINE HOSPITAL.

BY LOUIS FRANK, M.D.,

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Hospital; Gynecologist to the Louisville City Hospital; Sec-
retary of the Louisville Clinical Society, etc., Louis-
ville, Kentucky.

THE IMPORTANCE OF PELVIC MEASUREMENTS IN PREGNANCY.

GENTLEMEN,—The patient we bring before you to-day is one in whom deformity of the pelvis, justo-minor in character, is suspected. The cases you have heretofore seen have all been normal pelves, and my reason for now showing you this patient is more to demonstrate the methods of examining the pelvis in cases of suspected or known deformity than to tell you how to treat or care for them when the deformity is made out. It is possible that there is no well-marked deformity in this case, but from the history she gives us of difficult labors with forceps which have preceded this one we are led to believe the woman has a slight contraction of the pelvis. From the history of a given case we cannot always determine that the pelvis is abnormal in character. Difficult labor depends upon other things than deformities, and these must be taken into consideration. Thus, we must consider the character of the pains, the amount of ossification which has taken place in the bones of the skull of the child, whether the head is easily moulded or not, at what time in the course of labor the membranes ruptured, the amount of the liquor amnii, etc.,—all these things must be remembered, as they are sufficient to cause a difficult or prolonged labor which would not be due to any deformity. However, the antecedent history may sometimes lead us to suspect malformation, and especially the history of previous difficult labors, causing us to

investigate and accurately to measure the pelvis, thus ascertaining whether or not this should cause any delay in the delivery.

Among the causes of pelvic deformities we may mention rickets as being one of the most frequent, though osteomalacia, injuries, disease of the bones, or tumors springing from the bones are among the causes which may lessen the normal diameters.

By a justo-minor deformity of the pelvis you will understand we mean one where the diminution in size is equal in all diameters,—a symmetrical deformity, so to speak, or rather one in which, though practically symmetrical, the diameters are all less than the normal. An absolutely normal diameter in all respects is hard to determine; in fact the measurements assumed to be normal which are given are, we may say, arbitrary measurements. It is impossible to say what the normal measurements of a pelvis are; we can measure a great number of pelvises and average these, or we may take the measurements which occur most frequently; but it is safe to consider that the measurements ordinarily given in text-books are really the measurements as they should be.

The subject of pelvimetry is one of great importance. The importance of this branch of obstetrics is as great as that of the mechanism of labor itself, or any other part of the subject. You should be as familiar with the use of the pelvimeter as you are with the use of the stethoscope; it should be a constant companion in all cases of obstetrics, just as your stethoscope or your hypodermic needle is in your general practice. I would urge upon you, in every instance where you are engaged in a labor case, to make it a routine practice to measure by external pelvimetry the diameters of the pelvis. As a rule, it is only the most intelligent women, or those who have had trouble with previous labors, who consult a physician during the course of pregnancy, and a sufficient time before the advent of labor to enable the knowledge of the pelvic diameters as gained by actual measurements to be of much benefit in the management of the case. Young primiparæ, as a rule, do not call a physician until labor has begun, and this is true particularly among that class of people where we are most apt to meet pelvic deformities. Unfortunately, sometimes the diameters cannot be at that time accurately determined, as we are compelled to make all measurements hurriedly, and cannot give the care and attention in so doing that we are able to do when called early in a case. However, in any case where there has been the least difficulty during the course of labor, in the birth of the child, we should examine the pelvis after delivery to ascertain the diameters, as by the knowledge thus obtained we will

be able to manage intelligently a subsequent pregnancy in the same woman. Also at this time, that is immediately post partum, we can more easily ascertain the diameters by direct pelvic measurement than at any other time.

As I have told you, the general contour or appearance of the woman may not in the least suggest deformity ; very grave deformities may exist, of such a character even as to prevent the birth of a child through the parturient canal, and not even be suspected from the external appearance of the woman. Thus you will appreciate the importance of accurate measurements. It takes but a short time to make an examination, the woman is not exposed, and you will certainly add to your reputation as a careful practitioner, and as a physician who desires to give his patients every possible benefit, if you carry out this procedure.

The instrument which I ordinarily use is Martin's pelvimeter, the one which I now show you. Of course any of the various instruments devised for this purpose are equally as good, and my only reason for using this one is that it is compact and can easily be carried in your obstetrical bag, or even in the pocket. The scale at the screw of the instrument indicates the amount of separation of the points both in inches and in centimetres ; this can be easily read and the diameters estimated. We also have instruments for internal pelvimetry, the best among these being the Skutch instrument as modified by my friend, Dr. James B. Bullitt, of this city. By external pelvimetry certain diameters are measured, deductions being made for the thickness of bone and tissue, so that our results are not absolutely accurate. With Bullitt's modification of the Skutch instrument the internal measures which are obtained are absolutely reliable.

Of all the diameters of the pelvis the antero-posterior one is of the greatest importance, because you know that as rotation takes place the short diameter of the foetal head must of necessity pass this diameter of the pelvis. In certain forms of pelvic deformity with a short antero-posterior diameter, you can sometimes complete the delivery through one of the oblique or the transverse diameters. Of course, in certain forms of contraction where the transverse diameter is greatly or markedly shortened it is also impossible to deliver ; but, notwithstanding this, with a normal antero-posterior diameter we probably have other diameters of sufficient size to permit the easy birth of the foetal head. The external antero-posterior diameter, or Baudelocque's diameter as it is called, measures from seven to eight inches, and in obtaining this diameter we allow the patient to lie on

her side, place one point of the calipers over the last lumbar vertebra, while the point of the anterior blade is placed over the anterior surface of the symphysis pubis, then the thumb-screw at the joint of the instrument is screwed down tight and the measurement noted. By deducting from three inches in thin to three and one-half inches in well-nourished women, Baudelocque claimed that he obtained the true conjugate diameter. This deduction was made for the thickness of the bone and of the muscle. I will state, however, that "Michaelis found in living subjects that differences between the external and internal conjugate varied from two and ten-twelfths to four and seven-twelfths inches." This would make quite a difference in our estimate of the internal conjugate diameter, but this is true of all methods of external pelvimetry, and it is the great objection to obtaining the measurements in this way. There are so many things to be taken into consideration, so many opportunities of error from different sources, that it must always be inferior to direct internal measurements with the hand or to internal measurements with instruments of precision. The other measurements obtainable externally, and of importance as indicating the lateral deformities, symmetrical or asymmetrical in character, are the inter-trochanteric diameter, which normally is from twelve to twelve and one-quarter inches, then the diameter between the anterior superior spinous processes, measuring from ten to ten and one-quarter inches, and the diameter between the iliac crests, measuring from ten and one-half to eleven inches. This last diameter, however, "may measure as much as fourteen inches, whereas the inter-spinous may be as little as nine or as much as thirteen inches." So we see that these diameters may vary considerably, and still we may have a canal which will permit the birth of the child, and from that knowledge we cannot draw any accurate conclusions as to the size of the true pelvis. Taken in conjunction, however, with the other diameters they enable us to judge somewhat of the shape of the pelvis.

The measurements as shown in the case before us are not so greatly diminished as to give occasion for any uneasiness as to the result of the labor. You should, as I say, always make your examinations previous to the advent of labor; be sure what your measurements are, as, knowing this, you can often institute methods of treatment that will lessen the risk to the mother, or to the child, or to both. If the diameters are only slightly decreased, you will possibly save the child and save yourself a great deal of trouble by the performance of version. Again, with the diminution of the antero-posterior diameter to a certain degree, there are operative procedures which you may elect, and you

can then choose the time best suited for carrying them out. There is a great deal of difference between an operation deliberately performed as a matter of election and one where the preparation must necessarily be hurried, and where interference is done as a *dernier ressort*. No matter how great the diminution in the diameter may be, I would never advise craniotomy so long as you have a viable foetus. With a diameter between eight and eight-tenths centimetres and six and six-tenths centimetres, you should select symphyseotomy; with a diameter below six and six-tenths centimetres, symphyseotomy would render no service. You would then be compelled to resort to Cæsarean section, and you can easily imagine the difference in the prognosis when the operation is done upon your patient at the first advent of labor, and in a case where it may be the patient has been in labor for many hours, finding it impossible to expel the child, almost exhausted, on the brink of death itself, and you operate from necessity.

In the consideration, however, of the pelvic diameters, you must always bear in mind that they are relative; never lose sight of the fact that the diameters of the child's head must also be estimated. Many cases in which the measurements are below normal may be and have been delivered, the child being of small size; likewise, with the child's head above the normal, and with a pelvis of normal diameters, labor might become very difficult. So that, as I have said, you must not in the consideration of this subject lose sight of the body to be expelled. It is not always possible to estimate the size of the child's head before labor is begun; so that I would not advise you to await the oncome of labor in pelvic deformity in the hope that you may have a small child. Then, again, the amount of moulding which takes place must also be taken into consideration. We are able to say whether the head is a large one, or whether a small one, but only this and no more. We can to some extent judge whether or not the head will be able to pass through the pelvis, leaving out of consideration the size of the head, the size of the pelvis, etc., by pressing down upon the abdomen carefully and ascertaining whether the head will engage in the pelvic brim. A head which will engage fully will, as a rule, pass through.

Internal pelvimetry is of course to be preferred to external measurements, and with the Skutch instrument this may be done. Measuring from the promontory of the sacrum, with one blade of the pelvimeter in the vagina, to the symphysis pubis externally, then, reversing the instrument, measuring the thickness of the symphysis pubis, and deducting this from the first measurement, the antero-posterior diameter will be given with absolute accuracy.

The hand of the accoucheur is probably the best pelvimeter for internal work, and, by measuring your hand with the fingers extended, with the fingers completely flexed and the thumb folded under, with the thumb extended, with the fingers and thumb in various positions of extension or flexion, as described by Johnson and known as Johnson's method, you have then a pelvimeter which is always at hand, and one that is absolutely accurate. Another means of ascertaining the antero-posterior diameter is by what is known as Hardie's method. This, however, can only be done before the third month of pregnancy or the third week after parturition. To obtain the measurements by this method, the bladder must be emptied, the patient being placed on her back, with the legs and thighs well flexed. The hand is placed upon the abdomen, and the fingers, about one inch below the umbilicus, are pressed backward until the promontory of the sacrum is felt; then the point where the hand rests on the upper border of the symphysis is noted with the index finger of the opposite hand, and the distance between these points is measured with the tape. There is, of course, some chance of error in this measurement on account of the thickness of the abdominal parietes. Johnson's method can only be carried out after labor. Probably the best method of internal pelvimetry is to measure the diagonal conjugate from the vagina. This can almost always be done early during labor, and can always be carried out in the earlier stages of pregnancy or after labor. To obtain this diameter, the index and middle fingers of the left hand are inserted into the vagina and the sacral prominence sought for. Usually the perineum must be somewhat pressed back before the promontory can be reached. With the finger touching the promontory, the hand is carried up until the radial side of the forefinger comes in contact with the under surface of the symphysis. This point is noted, and, removing the hand, the distance between the tip of the second finger and the point where the symphysis has come in contact with the index finger is measured. This gives the diagonal conjugate, which usually measures from one-fourth to one-half an inch more than the true conjugate. Cases where the promontory can be readily or very easily reached by vaginal examination, I would look upon with great suspicion.

By the study of normal pelves, by internal examination with one or two fingers, you can readily learn to estimate the internal measurements. This is a subject, gentlemen, which you should not neglect. Study it thoroughly, examine women who are pregnant and those who are not, and endeavor to perfect yourselves in this department of obstetrics.

TERTIARY SYPHILIS.

This patient, B. S., white, is aged fifty-one years. Mother dead, cause unknown ; father died of tuberculosis when forty-six years of age. She is the youngest of ten children and the only one living.

She presents to us, with deafness, some defect in vision, cataract of one eye, and pupils which do not respond to atropine. The whole cornea on each side is intensely congested, and she has also a pharyngitis which is chronic in character. She has been referred to Dr. T. C. Evans, of the City Hospital staff as throat and eye surgeon, and I have also examined her on several occasions. Her deafness seems to be due to chronic otitis media of the catarrhal form. Her eyes show the effect of recurring attacks of kerato-iritis. In the left eye there are complete posterior synechia and a catarrhal ophthalmia. In the right eye, in addition to catarrhal ophthalmia, when the pupil is dilated as much as possible with atropine, the lens shows pigmented spots, a kerato-iritis, probably specific in origin. It is claimed that this condition is one of the effects of early syphilitic infection, these symptoms all being tertiary in character.

This case shows some of the manifold troubles arising from the effects of syphilis, with which we may come in contact, and also some affection of the central nervous system, it may be of some of the lateral columns of the spinal cord, evidenced by partial lack of co-ordination.

These are very obstinate cases to treat. As a rule, we see little or no benefit derived from any form of treatment after they get past a certain stage, and I question very much whether, after reaching the stage in which we see this woman, improvement will follow any form of treatment. The later in life that tertiary symptoms develop, the more difficult are they to treat. Of course, I now refer to tertiary symptoms of an hereditary character.

This patient's mother, as I have stated, had several children, and they all died except this one. The mother absolutely denied having had syphilis though she had one or two miscarriages. The patient before us has had two living children—one boy and one girl—and several miscarriages. We realize it is very difficult to get an accurate history from patients of this class. No woman will admit that she has been exposed to syphilitic contagion in an illegitimate way, and it is sometimes equally hard to ascertain whether the husband has infected her. This woman has been in the ward for quite a long time ; she has had paraplegia, which was undoubtedly of syphilitic origin ; she has been under treatment a number of times in other wards, extending

over quite a number of years. Most of her children were born in the hospital. All her children have died except the two mentioned, and, so far as I have been able to procure the history, all have had symptoms probably of syphilitic origin. Some of her miscarriages occurred earlier and some later during pregnancy. It is possible for a child to escape infection by the mother, though this is hardly probable, and it must occur in this way: if the child escapes infection at birth from a syphilitic mother, the latter must be under active antisymphilitic treatment at the time. The daughter of this woman has had syphilitic ozæna and the bones of the nose have sloughed away, the entire septum having been discharged, leaving simply a depression where the nose had been. She is totally blind and has been since shortly after birth. She is also deaf, never having been able to hear a sound. She is also perfectly dumb; has never been able to utter an articulate sound. She makes a noise, but with no semblance to an intelligible articulation. There is also an ankylosis of almost all the joints of the lower part of the body, with partial paralysis of the upper portion of the trunk.

TUBERCULAR VERTEBRAL DISEASE.

The next patient is aged fifty-seven years. Her history, as far as we have been able to obtain it, is good. She was in robust health up to twelve months ago, when she became very weak, had night-sweats and loss of appetite and energy. At the same time she felt, as she describes it, an aching pain in the region of the hips radiating to the upper walls of the lumbar region. At this time she could not stoop, but had the power to walk. This condition continued for three weeks, at the end of which time she noticed a swelling just above the greater trochanter. Three days after she first noticed it there was a rupture of the swelling and a discharge of pus. Since that time she has grown gradually weaker, but within the last few days seems to have improved. Six months ago the glands in the neck became enlarged, but have since disappeared. One of the glands ruptured externally, as you will notice from the small, depressed, drawn cicatrix. There is evidence of tuberculosis pulmonalis, as observed by a physical examination and also by a bacteriological test. So that we evidently have a case of tuberculous disease of the bone. The abscess ruptured very high in the lumbar region, which is rather unusual, rupture commonly occurring lower down under Poupart's ligament. The abscess arises probably from disease of the sacrum.

One point in connection with the diagnosis of such cases occurs to me as especially important, and that is the inability of the patient to

stoop when suffering from early tuberculosis of the vertebra. If you drop a coin on the floor, for instance, the patient will sit down upon the floor to pick it up rather than attempt to stoop. There has been quite a copious discharge of pus from the external opening of the abscess or the incision that was made in order to liberate the contents of the abscess, and the opening may be followed for twelve inches to the bottom of the abscess cavity at the sacrum. The abscess cavity was thoroughly curetted and packed with iodoform gauze, and a solution of iodoform in oil has been injected daily since. Notwithstanding this there is still some pus discharging.

While this woman gives a history that would at once lead us to suspect tuberculosis, there is no previous history pointing in that direction. She has never had another abscess about the body, and was apparently in good health until this swelling appeared, as I have indicated, which ruptured with the discharge of a great deal of pus. [This patient died two months later of a general tubercular infection.]

CANCER OF THE UTERUS.

This patient, colored, is forty-six years of age, and has been in the hospital for six years. When she came into the hospital she was a large woman, weighing one hundred and sixty pounds. At the present time, as you observe, she has become very much emaciated, and would probably not weigh over one hundred pounds. She has that disease from which so many women suffer, malignant disease of the uterus. Usually, the first symptom that these women have, and the earliest symptom which you will notice, is hemorrhage, metrorrhagia, or menorrhagia. Sometimes it begins with a slightly tinged discharge resembling very much the beginning of the menstrual flow, which may continue for several days and disappear. In most cases there is a more or less profuse leucorrhœal discharge.

Cancer of the uterus may occur in women of any age. Cases have been reported at the age of fourteen years. We should always bear in mind that we must differentiate between cancer and other troubles. As I have said, cancer may occur at any age, though it is more frequently met with after forty years. However, it does occur in patients as young as eighteen years. I have had under observation a case at that age, and it may also occur in younger subjects. There are various ways by which we are able to diagnose this condition, such as absence of an extensive tumor, etc., but more accurately by microscopical examination of material curetted from the cervix. It usually begins as an epithelioma of the cervix, and probably one reason why we find

cancers in women advanced in life especially is that we know they occur very often in the region of old cervical lacerations.

In the case before us the cancerous process is too far advanced to attempt a cure by any radical operation. As we are able to recognize at a glance, a radical operative procedure in this case would promise nothing. When the disease is recognized early, if the cervix is curetted thoroughly to remove all the cancerous tissue a few days before a radical operation, many of the patients get well.

FRACTURE OF THE FIBULA.

The next case is a fracture of the fibula. The patient, white, and a female, is aged seventy years. By a fall she sustained a fracture of the fibula at about its central portion eight weeks ago. I simply exhibit the case to you to show the excellent result obtained in so old a patient. At this age the bones are very hard and brittle, more earthy elements being present, and fracture occurs much more readily, and, besides, union takes place much more slowly than in younger subjects. She has had a plaster bandage applied, extending from above the knee to below the ankle-joint. Of course, the bandage should always extend from below the ankle to above the knee in a case of this kind, in order that the ends of the bone where fracture occurred may be kept in proper position and to prevent any movement. If we were to put the bandage between the joints mentioned we could not hope to get perfect immobilization. It is always best to put plaster bandages above and below the joints. Sometimes we find in these cases that the bone shows very little disposition to unite, and it may be advisable to put on a plaster dressing and let the patient get up and walk about the room. In this way irritation about the fragments caused by walking will hasten the formation of callus and thus induce union.

As we remove the plaster bandage we see that the limb is slightly stiff from disuse, but it will soon recover from this. It is probable, however, that the ankle-joint will never be as supple as it was before the fracture.

WOUND OF THE SCALP.

This girl, white, aged sixteen years, applies to us for treatment because of a contused wound of the scalp. Yesterday morning she was thrown from a carriage, her head striking the curb-stone, resulting in quite an extensive gash, as you will observe, extending from just above the brow, near the middle of the forehead, in a circular direction, to a point two inches above the ear. She was immediately sent to the hospital. After checking the hemorrhage, the hair was carefully shaven

on that side of the head, and, after assuring ourselves that the bone was not injured, the wound was dressed antiseptically. In all contused wounds of the scalp it is very important that we make a thorough examination, to ascertain if the bone has been injured, before applying our dressing; the hair should be well shaven all around, always remembering that injuries of the scalp, however slight, may cause very serious effects, this being on account of the close proximity to the brain, the structure of the brain itself permitting, when these wounds are once infected, of the migration of micro-organisms inside, which thus cause a great deal of trouble. Again, wounds about the face and head are very prone to infection by the streptococcus of erysipelas.

The next case is also one of injury about the head. The woman is about twenty-five years of age, and presents a wound two and one-half inches in length, extending directly across the forehead, going through the occipito-frontalis muscle and down through the periosteum to the bone. She came into the hospital ten days ago; at that time there was also a contused wound of the face, which has now healed. There was no fracture of the superior maxillary bone, the wound being only a superficial one. The injury was sustained in a street-car collision, and this cut on the forehead was made from without in, as shown by the cut through the periosteum; it looks as if done by a sharp knife. She was brought to the hospital, and, after the wound had been thoroughly cleansed, several stitches were taken in it; the periosteum was not sutured; as the edges were not much separated, it was approximated by compression above and below. There is still some redness about the wound, and considerable pus has discharged from it, probably owing to infection from the filth of the street at the time injury was received.

Wounds about the face usually heal very kindly. As a rule, even deep wounds of the face heal and the cicatrix becomes so smooth in the course of a few months as to be hardly perceptible. In injuries of this character we should do everything we can to insure a smooth, even cicatrix, for cosmetic effects.

SINUS AFTER OPERATION FOR PYOSALPINX.

This patient, a female, white, and aged about thirty years, had a double pyosalpinx, and was operated upon three weeks ago. She has remained in the hospital on account of a sinus, which may be traced down into the left side, and at the bottom of which there is no doubt an infected ligature. Drainage was used in this case. We dislike very much to use drainage in these cases of abdominal section, on account

of the liability of a sinus remaining behind, due to infection, it may be, through drainage itself. It is sometimes a difficult matter to prevent infection, even where the utmost care is exercised. I believe in this case that the ligature became infected, causing a constant discharge of pus, which will continue discharging until the ligature has been expelled through the opening. We often find that we are able, by careful dilatation and probing with a soft probe and forceps, to catch the ligature after it has become partially detached and bring it out. After the ligature comes away, the wound usually heals very kindly.

Another reason why we desire to do away with drainage, if possible, is on account of the liability to ventral hernia; after these sinuses close they always leave a weak point, the union of the fascia being purely cicatricial tissue, causing a weak point, and we have hernia following. I believe that after sinuses we always have herniæ following after a certain length of time.

TUBERCULOUS DISEASE OF THE KNEE-JOINT.

The next patient, E. T., a female, white, aged eighteen years, is suffering from tuberculous disease of the knee-joint. A resection was done when she entered the hospital six weeks ago, and she has gotten along very nicely so far as healing of the wound is concerned, except there is here also a sinus. Her mother died of phthisis; she has no living sisters; one brother died when young. Three years ago she observed a swelling of the left knee, on the outer side principally, which, although causing no intense pain at the time, produced fever, and finally became so severe that she was forced to go to bed. She was admitted to the hospital some time later with an immensely swollen knee. A quantity of clear fluid was aspirated from the synovial sac, which led the surgeon to suspect synovitis, thus causing him to make an incision on the inside of the knee. After this incision considerable fluid discharged and she seemed to be somewhat better. Improvement was only temporary, however, and it was then decided to do a resection. Three days after the operation the wound showed evidences of infection. The infection was evidently of streptococcus origin, and the wound has not done well on this account. It is probable that this sinus may be kept open by this infection, or we may have some infection of the tissue from the tubercle bacilli themselves. It may be that some of the tuberculous tissue was left behind, which, once being opened, would continue to break down and discharge. A plaster-of-Paris bandage has not been put on, because there has been at all times a small sinus discharging at the outer aspect of the knee at the point of resection. The wound is

being cleansed every day with peroxide of hydrogen and treated antiseptically. You will observe some little external granulation, as we always find in old sinuses.

TRAUMATIC ANEURISM IN THE THIGH.

The last case in the series is one of traumatic aneurism of the femoral and external iliac arteries; the patient, white, and a female, is aged thirty-five years. Six months ago she received a severe blow upon the inner side of the thigh from a piece of iron attached to some machinery with which she was working. This was followed at first by no swelling nor pain; a week afterwards, however, pain and swelling made their appearance. The tumor continued to increase very rapidly in size, and a distinct aneurism of the upper femoral and lower external iliac arteries was made out. She was subsequently sent to the hospital and operated upon by Dr. W. C. Dugan. A large aneurism of the external iliac was found. The operation was done very high, but extra-peritoneally, going in posteriorly. The artery was carefully ligated above and below the tumor. There was considerable bleeding even after ligation; the hemorrhage came from below. Of course, the point in these operations is to operate low enough, so as to be sure to establish the collateral circulation. The limb is then swathed in cotton to keep it warm and to promote the circulation as much as possible. In this case the collateral circulation is well established. If collateral circulation is not promptly established we have death of the parts and consequent gangrene. In the case before us there has been gangrene of the ends of all the toes, especially about the nails, and of the two distal joints of the great toe. There are also two spots of slough upon the plantar surface of the foot. All things considered, however, we could hardly hope for a better result. The operation is a serious one, not only as regards the result, but there is a great liability to gangrene.

The older authorities, as a rule, recommend a high amputation in cases of this kind, but I believe if by any means we can save the limb, we should always try to do so. There may be some shrinking of the leg, owing to imperfect circulation, but in this case it will likely be very slight. She is now able to walk about the ward on crutches. You will observe a varicose condition of the veins about the calf, which may be due to some pressure by the cicatrix on the vein above. The deformity is entirely due to the non-use of the leg and the position in which it has been kept, producing a false ankylosis of the joints. When the normal position of the leg is assumed, the apparent deformity will gradually correct itself.

Ophthalmology.

GRANULAR CONJUNCTIVITIS AND TRACHOMA NOT SYNONYMOUS.

CLINICAL LECTURE DELIVERED AT THE GROSS MEDICAL COLLEGE.

BY ROBERT F. LeMOND, A.M., M.D.,

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GENTLEMEN,—We will take for our subject this morning the characteristics and differentiation of granular conjunctivitis and trachoma.

These two thoroughly important affections of the eye, which are in nearly every case referred to as being one and the same thing, I claim to be altogether different,—as much so as pneumonia and pulmonary tuberculosis,—and I think any one who will observe closely will agree with me that there is a marked distinction between these two affections. I have reference particularly to the chronic forms, from the fact that until they are thoroughly developed neither trachoma nor granular conjunctivitis has its characteristic symptoms, which may be readily recognized.

Trachoma is due to a micro-organism, which differs but little, according to Neisser, from “the diplococcus” of gonorrhœa, which perhaps has its origin in vaginal secretion, at least it is so stated by most writers.

This disease predominates in low altitudes, and is quite prevalent in malarial districts (I speak from experience, as I have practised there), and it prevails in these countries sometimes as an endemic.

In this disease we have hypertrophy of the papillæ of the conjunctiva, which extend above the conjunctival surface, and are of a dark hue, showing that the circulation is very poor. I will now give a number of the positive differential diagnostic symptoms which will not fail in these two affections.

TRACHOMA.

In trachoma we have no photophobia.

In trachoma no cupping of the cartilage.

In trachoma no corneal complication.

In trachoma no destruction of the epithelial layer of the cornea.

In trachoma there is no ankyloblepharon.

In trachoma no contact between the cilia and cornea.

In trachoma there are seldom errors of refraction.

In trachoma there is rarely destruction of the palpebral conjunctiva.

In trachoma no blepharitis marginalis.

In trachoma we have but little secretion.

In trachoma there is rarely involvement of the ocular conjunctiva.

GRANULAR CONJUNCTIVITIS.

In granular conjunctivitis marked photophobia.

In granular conjunctivitis cupping of the cartilage.

In granular conjunctivitis marked corneal complication.

In granular conjunctivitis often partial destruction of the epithelial layer of the cornea.

In granular conjunctivitis there is ankyloblepharon.

In granular conjunctivitis the cilia and cornea are in contact.

In granular conjunctivitis there are always errors of refraction.

In granular conjunctivitis there is total destruction of the palpebral conjunctiva.

In granular conjunctivitis nearly always blepharitis marginalis.

In granular conjunctivitis there is a marked increase of secretion.

In granular conjunctivitis the ocular conjunctiva is always red and inflamed.

Now, as far as the origin of the two diseases is concerned, I claim that it is altogether different, and locality has a great deal to do with these two very aggravating eye troubles.

I find that granular troubles predominate in open prairie countries, and especially countries that predominate in lime-dust, as we have in the prairie countries of Colorado, New Mexico, Wyoming, Nebraska, Kansas, and Western Texas.

After this disease has become thoroughly established, if we will evert the lid and examine it with a strong glass, we can see that the granulations run in perfect little straight lines, and there are little excrescences which actually rise above the conjunctival surface with a sharp point, and if we cocaine this lid so as to render manipulation not objectionable, and take an applicator and pass over the lid, it will produce a grating sound,—much the same as coarse sand-paper. The surface of this lid is very fiery and red; while in trachoma it has a dark red, velvety appearance, and the little nodulations are rounded, and not sharp as in granular conjunctivitis. We find trachoma in childhood altogether, while granular conjunctivitis is found in persons from twelve to even fifty years of age.

One other strong argument in favor of these characteristic differences is that we will find sometimes from two to five children in the same family all suffering with trachoma, showing its predominance in being transmitted from one to another in the same family ; while in granular conjunctivitis we will find one person in a family who possibly has had the trouble for five years, and not another member of that family will have the same eye-trouble. But understand I do not make the declaration that granular conjunctivitis cannot be transmitted, for I believe it can be by using the same towel, and by not observing proper care in the cleanliness of the eyes, but it has no transmissible tendencies beyond this, I think ; while I believe that trachoma will be caught by children merely associating together. I can remember that when I was in the Manhattan Eye and Ear Hospital, in New York, we sometimes would have whole families affected with trachoma, and the mothers of the children would say that as soon as they found one of the children had something wrong with its eyes they would at once insist that a separate towel be used, but notwithstanding this precaution, the other children would succumb to the prevailing epidemic.

So far as the ravages of these two diseases are concerned I regard granular conjunctivitis as much more destructive, from the fact that it always carries a great deal of retinal hyperæmia with it, and we know that oftentimes where the retina has been chronically engorged for a long while it never does recover its visual acuity, not saying anything of the error of refraction that is always present in this disease.

So far as the treatment is concerned, that varies about as much as the diagnostic characteristics.

In trachoma I always advise an operation upon the engorged lids. I prefer Noyes's method to any other I have ever tried ; usually anæsthetizing the patient with chloroform or ether, because this operation is very painful. I then take Noyes's forceps and compress the thickened lids, then, after the pulpy mass has been squeezed out, I use an astringent upon the eyes, and apply it about once a day after the eyelids have been cocainized ; and recommend that they be treated once a day for a week or two, and then possibly three or four times a week for a short time, and then dismissed. I sometimes use glycerite of tannin, sometimes a weak solution of nitrate of silver, from one to five grains to the ounce, and sometimes cupric sulphate solution, from one-half grain to four grains to the ounce, and I have different strengths of glycerite of tannin, usually about four different strengths, because some will require a stronger solution than others, and *vice versa*.

I think, however, that many different kinds of astringents might be used with curative effect, but I merely give those that I am most partial to.

In granular conjunctivitis I rarely use Noyes's forceps on the lids, but sometimes I use mechanical abrasion on the lids after they have been thoroughly cocainized, and get up a hypersecretion and excitation about the lids, for it is by absorption and excitation continually that the cure is produced. After rubbing the lids with a cotton pledget on the applicator, I often apply a solution of nitrate of silver, from five to ten grains to the ounce. If this does not work well, I soon change it to something else,—cupric sulphate solution, from two to eight grains to the ounce. Salicylate of sodium is also thought to be a splendid stimulant, ten to fifteen grains to the ounce. Alum and the zinc preparations also possess some value.

If there is much cupping of the cartilage, of course we cannot hope to relieve this except by surgical interference, because it is simply a question of mechanics that we have to deal with. If the cilia are dragging upon the sensitive cornea, of course they will have to be removed before the eye can be cured. I do this by making an incision just back of the cilia, down through the muscular tissue to the cartilage, and if it is badly cupped, I slit the cartilage, making a horizontal incision from one-eighth to three-eighths of an inch, and then I take out an elliptical piece of the muscular tissue, extending from the inner to the external canthus. I gauge its width according to the involvement of the lid. I then bring the ends of the cut muscular tissue together and stitch them, usually using about four stitches. If this operation is properly done, it usually relieves the mechanical abrasion and helps to keep the eyeball from being irritated. After the granular surface of the lid is healed, I correct the error of refraction and advise the constant wearing of glasses. This I think will do much to prevent the return of the disease, and in my experience has worked well.

TENOTOMY OF THE EXTERNAL RECTUS MUSCLE FOR CORRECTING DIVERGENT STRABISMUS.

CLINICAL LECTURE DELIVERED AT THE HOSPITAL COLLEGE OF MEDICINE.

BY SAMUEL G. DABNEY, M.D.,

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GENTLEMEN,—The first case I shall bring before you this afternoon is Mr. C., aged thirty years, a medical student, who is kind enough to come before us for operation, instead of having it done at my office. He gives us the history that he was struck in the eye by a piece of wood when nine years of age. Of course, after such a long time, he can give little or no history of the symptoms that developed immediately following the injury. Unfortunately, the results that are now apparent tell the story very plainly. You will observe that his left eye turns outward; in other words, he has divergent strabismus of the left eye. I want to show you that this strabismus is not a paralytic one. The left eye, as you see, moves in harmony with the right. We call this condition, then, a concomitant strabismus. If there was paralysis of the internal rectus muscle,—that is, if this were a case of paralytic strabismus,—of course, the left eye would fail to correspond in its movements with its fellow. In cases of paralytic strabismus the eye fails to move in the direction in which the muscles paralyzed ought to turn it. By an examination we find that he has only a perception of light in the affected eye; he is unable to count the fingers even when placed very close to the eye. By looking at the pupil you will observe that it is not round; it has assumed the shape of an egg, ovoid, the small end being downward and forward. You will see that the iris has caught in the cornea. That condition we call anterior synechia. The pupil is partially dilated. This dilatation, however, is due to some belladonna put into the eye a few days ago. By looking into the pupil you will

see an opaque, white spot,—that is, a cataract or opacity of the lens; to speak more properly, the capsule of the lens, or the remains of the capsule of the lens left in his eye.

At the point of attachment is a white spot in the cornea. With these symptoms before us the case is perfectly clear. The stick that struck this patient in the eye penetrated through the cornea; it went farther than that; it not only passed through the cornea, but it also passed through the anterior chamber, and went into the crystalline lens, rupturing the capsule of the lens as it passed. We have consequently a traumatic cataract. This traumatic cataract has been gradually absorbed by the aqueous humor coming in contact with the lens, and there remains only the capsule which you see. We will hereafter needle the capsule and give the patient a proper glass, and thus his vision in that eye will be greatly improved.

Now, you may ask, What is the reason for the ovoid shape of the pupil? When the stick was pulled out of his eye, or when it came out of itself, as the case may be, the aqueous humor came out with a gush and a part of the iris was pushed forward and became caught in the wound, producing what we call anterior synechia. This is the explanation of the egg-shaped pupil. We have explained the shape of the pupil, and we have explained the defect in his vision,—namely, the presence of the capsular cataract. There still remains unexplained the cause of the divergent strabismus. It is simply because the eye became blinded in early life, and because the external rectus muscle predominated in strength over the internal. If he had both eyes he would have made a certain strain on the internal recti muscles and would have demanded binocular sight. Now, the left eye being practically useless, it follows its muscular equilibrium, thus causing divergent strabismus.

In operating upon a case of this kind there are two things we desire to correct: First, the malposition of the eye to cure the strabismus; second, by needling the cataract to improve his vision. He says he simply wants improvement in the position of his eye. I am to operate this afternoon, then, to correct the divergent strabismus. This I will do by doing a tenotomy on the external rectus muscle. The external rectus muscle is relatively too strong; it turns the eye outward. When we cut it we will then place its attachment farther back on the globe of the ball, and therefore its power will be lessened, and this will tend to correct the deformity. Section of the external rectus is not so satisfactory as section of the internal rectus. We operate by making a tenotomy of the muscle at the point of its attachment. The

technique of the operation is not a difficult one. As you see, I have carefully scrubbed my hands with soap and water; we have also bathed the eye with a weak solution of the bichloride of mercury, and dropped into the eye a ten-per-cent. solution of cocaine. We will use a ten-per-cent. solution of cocaine, as this produces more complete anæsthesia than the four-per-cent., which is often used. Our instruments ought to be boiled in hot water for a few minutes so as to render them absolutely sterile. By asepsis in these operations we mean perfect cleanliness, and this should be rigidly observed. Having sponged the eye well with the bichloride of mercury solution, washed our hands carefully, our instruments having been thoroughly cleansed with hot water, I will take a speculum and open the lids, having the eye well anæsthetized with cocaine. We will take up first the conjunctiva over the surface of the external rectus muscle and clip it with the scissors; then, having gone through the conjunctiva, we will go through the capsule of Tenon. The effect of our operation will depend largely upon the degree to which we cut the capsule of Tenon. We have dropped into the eye a ten-per-cent. solution of cocaine three times at intervals of five minutes, so we can reasonably expect that the eye will be thoroughly anæsthetized. The scissors you use in doing a tenotomy had best be blunt-pointed, because the chance of wounding the sclera is less. This is an accident that may happen; it would certainly be a rare one, and would seem to be due to gross carelessness, but is one that has happened to experienced operators. Therefore it is best to use blunt-pointed scissors. You will observe in doing the operation on the left eye, I stand behind the patient; the speculum is introduced holding the lids well open; the eye is thoroughly anæsthetized, and the patient does not feel pressure on the ball with my finger. The first step is to take up the conjunctiva just over the insertion of the external rectus muscle,—that is, at a point about one-fourth of an inch back from the sclero-corneal junction near the middle line of the cornea. You see I cut the conjunctiva carefully, snipping it through. I have now gone through the conjunctiva and the capsule of Tenon. At this point I will drop a little more cocaine into the conjunctival opening over the tendon. It is always well to take this extra precaution, as introduction of the tenotomy hook under the muscle and holding it forward causes more or less pain. The subconjunctival injection of cocaine in this operation is said to act very well. I have never tried it. I now have the bulk of the external rectus muscle on my tenotomy hook and holding it there will take the scissors and clip it close to its insertion to the ball. Having clipped off the main attachment of

the tendon, I will again put a drop of cocaine into the eye so as to give the patient as little pain as I possibly can. It is well enough to irrigate the eye now with a $\frac{1}{8000}$ bichloride of mercury solution, but it is not absolutely necessary. To make more certain my effect I will take the tenotomy hook and search for the lateral fibres of the muscle, if any remain uncut. I will clip the capsule of Tenon a little farther on each side so as to produce as free an effect as I can, because, as I have already told you, I regret to say that tenotomy of the external rectus muscle is not so satisfactory as upon the internal rectus, as we do not get the same amount of effect. I will now remove the speculum and see whether the effect is sufficient. Pain has been little during the operation. I take it the most painful part of the operation is taking up the tendon and holding it with the tenotomy hook. In most of these cases we have to cut the external recti of both eyes to secure the proper effect. This may be done at the same sitting; but if our patient prefers to postpone the second operation, I will do so. Some one asks how tenotomy of the external rectus of the right eye acts in this case.

Squint, gentlemen, as I have explained, is a lack of parallelism of the two eyes; in our patient, for instance, one eye is directed to the left, while the other eye is directed straight in front. Suppose, after tenotomy of the left external rectus, his left eye still turns somewhat to the left? Now, if we cut the external rectus muscle of the right eye, we will cause that eye also to turn a little to the left, so that the two will be parallel. Do not tell your patients that anything in medicine or surgery is absolutely certain. It is not. Accidents may happen from the simplest procedure with the most expert operator. In this case the probabilities are enormous that the patient will have no serious trouble from the operation. There may be a little pain and headache for a day or two, and redness of the eyes for a few weeks. Outside of these symptoms the probabilities are that he will have no trouble.

By an examination we find there is still some divergent strabismus, but it is much less than before the operation. In many cases, after cutting the external rectus muscle, we have to do an advancement of the internal rectus. That procedure I would not advise now. The eye still turns slightly outward, and the operation should be completed by cutting the external rectus of the right eye. The effect of the operation may increase for the first few days, but the permanent effect will be about as it shows immediately after the operation. The permanent effect of a tenotomy is very nearly what you obtain directly afterwards. We should try in all cases to do the simplest procedure

to begin with. Should tenotomy of both external recti fail, the proper plan would then be an advancement of the internal rectus of the affected eye, drawing it farther up towards the cornea.

The patient having consented to our doing a similar operation upon the right eye, we will proceed. In operating upon this eye you will notice that I stand on the patient's left side. I will take up the conjunctiva with the tenotomy hook in the same manner as in operating upon the other eye at a point one-fourth of an inch from the sclero-corneal junction. Having excised the attachment of the muscle, I will again drop a drop or two of the ten-per-cent. solution of cocaine upon it so as to give the least amount of pain possible. Having waited a few minutes, I take up the conjunctiva and introduce the hook parallel with the long axis of the lid; I then catch it under the muscle and bring it directly up. This causes some pain.

Having thus cut both external recti, we again examine the position of the eyes and find that they are now either parallel or so nearly so that no squint is manifest. Little after-treatment is necessary. Cold applications of a solution of bichloride of mercury (one grain to the pint), applied with pledgets of absorbent cotton to the closed lids, and as our patient is rather nervous, a powder of phenacetin and bromide of potash, to be taken at bedtime, meet the indications.

Laryngology and Rhinology.

THE FORMS OF EPITHELIAL HYPERTROPHY IN THE LARYNX.

CLINICAL LECTURE DELIVERED AT KING'S COLLEGE HOSPITAL.

BY GREVILLE MACDONALD, M.D.,

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GENTLEMEN,—On arriving at this point of my subject it may appear that the collective title I have adopted is not altogether expedient, seeing that it will be inevitably necessary, while speaking of epithelioma, to refer to another form of malignant disease of the larynx, —viz., sarcoma. But the comparative rarity of the latter—only one case of sarcoma, according to the statistics of Bosworth, occurring to sixty-two of epithelioma—will justify my arrangement, and actually there is not much clinical difference between the two diseases.

A case has recently occurred in my practice (the particulars of which it would be very instructive to enlarge upon further than might be consistent with discretion) bearing so strongly upon the most important points which I wish to impress upon your minds that I might well take it as a text for my remarks. Briefly, the points are these: The patient was seen nearly two years before he died by two distinguished specialists, who agreed that, the disease being limited to one vocal cord and the diagnosis practically positive, the comparatively simple and safe operation of thyrotomy would in all probability save a very valuable life. The patient's family adviser failed to credit the possibility of a diagnosis at so early a stage, and sought an opinion which would prove less alarming to the patient. The consequence was a wretched death, involving many months of suffering, and there can be no question that, in spite of the somewhat ominous array of statistics, the life might have been spared. I myself saw the case too late for anything to be done except tracheotomy. Now, at the outset I would impress upon you how little statistics are to be trusted in matters sur-

gical. Think how little hope they would have afforded the subject of ovariectomy a few years ago! Think how dangerous a proceeding was the opening of the knee-joint for uniting a fractured patella! One might multiply instances indefinitely. It is sufficient for our purposes just now to reflect that the statistics of this somewhat rare affection are steadily improving, and that in all probability, in the course of a few years more, thyrotomy at any rate will come to be considered as one of the safest of operations and as successful in eradicating malignant disease of the larynx in well-selected cases as are similar operations on the tongue. But the success will depend always as much, if not more, upon the successful diagnosis with the laryngoscope than upon the skill of the operator. Therefore I would urge you to lose no opportunity of examining every case of this kind you come across and to watch its progress. The cases are fortunately rare, and the opportunities of examination not to be passed by when they are offered.

To compare the statistics of the operation for a moment: In the twenty-two cases of thyrotomy collected by Mackenzie, in only two was the operation successful, but in Semon's twelve cases where the operation was performed there were seven recoveries and five deaths. In few cases are the patients seen in so early a stage of the disease as in the case to which I have just been referring, and the chances were correspondingly better. As the years go on we specialists find that we are seeing cases, more especially those of the hospital class, at increasingly early stages. They are not willing to suffer so long before seeking skilled help. Taking this fact in conjunction with the better education of the coming race of practitioners and the improvements that will doubtless be made in preventing sepsis, which is the chief risk in these operations, and our operation of thyrotomy will be among the most successful in surgery.

But now we must pass on to the clinical aspects of the disease. The subjective symptoms are not worth very much. The earliest indication is generally hoarseness, although this is often not so pronounced as in benign neoplasms, seeing that the latter affect in preference the anterior parts of the glottis, while, if the cords are primarily affected by epithelioma, it is usually the posterior regions that are involved. A small papilloma on the anterior commissure may make a patient aphonic, whereas a comparatively extensive epithelioma situated posteriorly may only make him hoarse. Pain is altogether a late symptom in intrinsic disease,—that is to say, where it originates on the cords, true or false, in the ventricles, or the subglottic regions. Indeed, from first to last there is often no pain whatever, so that the

symptom of pain shooting into the ear, commonly considered as of some use in indicating malignant disease, is of little or no value. It is quite as frequently observed in phthisis, and may be found in syphilitic ulceration, or, indeed, in any disease deeply seated. The cough is seldom distressing, being no more than is necessitated by the increased flow of mucus. We seldom or never find that terrible inability to expectorate the phlegm so often observed with destruction of the vocal cords in tuberculous disease. Salivation is sometimes pronounced, and occasionally the expectoration is tinged with blood. In rare cases there may be actual and even profuse hæmoptysis. As the disease advances, the glottis becomes encroached upon and dyspnoea results, thus necessitating tracheotomy sometimes at an early stage.

Objectively there is little difficulty in making a positive diagnosis in a case well advanced or with certain indications well developed. Wherever we find extensive infiltration associated with ulceration where the ulcerated surface is either sloughy or warty-looking,—that is to say, where the broken surface is studded over with papillary-like or irregular cauliflower excrescences, where this irregular overgrowth obviously extends beneath the unbroken surrounding mucous surface, wherever the development is such that the normal appearances have undergone such disfigurement that they can be no longer discriminated, such as the arytenoid and aryepiglottic fold being indistinguishable from the ventricular band,—in any such case there need be no question as to the nature of the disease. It is in the less pronounced cases that the diagnosis presents difficulties, from the fact that there are many other cases which resemble the malignant, and, as it is in these very instances where the case comes under observation at a comparatively early stage that an accurate and speedy diagnosis becomes all-important, nothing but a close study of the characteristics of the case and its comparison with others which have fallen under our observation can make our skill of any avail to our patient. In one of my earliest cases, reported in conjunction with Mr. Charters Symonds in the *Transactions of the Clinical Society* for 1889, the patient presented himself with aphonia, and the glottis and supraglottic space were occupied with what appeared to be a papilloma, although looking perhaps less distinctly papillary than ordinarily, and having a gray, somewhat mottled appearance. Now, simple papilloma, although it may have almost any hue from gray to a dusky red, is invariably, I think I may say, of uniform color and almost uniform in the size of its constituent papillæ. So that the appearance alone in this case was sufficient to make one entertain doubts as to its benignancy. But there was no indication of

the neoplasm having involved structures deeper than the mucous membrane. A little later there was an appearance of superficial ulceration at one part of the tumor, and this further corroborated my suspicions. Yet the laryngoscopic examination was not sufficiently conclusive to justify an external operation. Accordingly I removed the mass with forceps, and, unfortunately, effected it so thoroughly that the voice was immediately restored almost perfectly. I say *unfortunately*, seeing that in consequence of what the patient could not but believe to be his cure, in spite of my warnings, he would not submit to any further operation until six months later, when his voice again began to fail. He was under observation all this time, and invariably presented the highly suspicious if not conclusive points of a congested infiltration of the whole of the left cord, and, at one spot near the centre of the upper surface from which the growth had sprung, a silvery white spot occupying perhaps a sixth of the surface of the cord, and, when touched with the probe, giving the appearance of having a velvety surface, although remaining for many weeks apparently quite flush with the surrounding mucous membrane. In this case only quite late in the course of the disease did the cord become immovable, although it was mechanically interrupted in its functions by the mass of growth lying in the glottis. Now this sign of impaired mobility is accounted one of the most valuable as an indication that the epithelioma has advanced more deeply into the structures than is indicated by any surface appearance, and therefore it is a point of the utmost value in the diagnosis of malignant disease. To be brief, we may say that whenever there is a new growth, especially when situated posteriorly rather than anteriorly, in which the surrounding mucous membrane partakes, or, rather, is swollen, thickened, or merely congested; whenever with such congestion there is in its immediate neighborhood ulceration which passes into and involves the growth itself; whenever the movement of the cord of the affected side is unquestionably impaired, such impairment not being accounted for by the size of the growth as it projects into the glottis; whenever there is, perhaps, no actual projecting tumor but there is in its place extensive ulceration destructive of the normal appearances and the ulcerated surface is studded with wart-like projections of varying size and color; in any such cases we may suspect, with tolerable certainty of the correctness of our diagnosis, epithelioma. Sometimes, moreover, there is a subsidiary perichondritis induced, perhaps quite early in the disease, and there may be extensive œdema in the immediate neighborhood of the infiltration; there may be evidence of hemorrhage; there may be such extensive sloughs as will

prevent our gaining much information upon which to rely ; there may, indeed, be any degree of combination in these various points, and a diagnosis will not always be as easy as one could wish. We shall most often be in doubt as to the possibility of the case being one of tertiary syphilis, and in some cases, especially where there is extensive ulceration, iodide of potassium may clear up the difficulty. Yet it must be confessed, I should imagine, by most of those who have had large opportunities of seeing these cases, that the failure of the iodide in improving appearances must not always be taken as of the first value in eliminating the possibility of syphilis, and we must remember that sometimes enormous doses are required before the drug will operate. Nor, on the other hand, must we be misled by the fact, frequently observed, that many a patient suffering from malignant disease will express himself as feeling greatly better for a week or two after taking iodide of potassium, although there will be no improvement apparent to the laryngoscope.

A distinction between sarcoma and epithelioma of the larynx is not always possible. The sarcoma is more uniform in its surface and is probably always softer in consistence. But the comparative rarity of sarcoma will help us. In both cases the lymphatic glands are affected only very late, provided the disease is intrinsic, so that, except in far-advanced cases of epithelioma, where, indeed, there is no difficulty in predicating the nature of the disease, infiltration of the glands in the neck is of but the slightest help in diagnosis. Correspondingly, the cachexia, often so suggestive of cancer when affecting other organs, is often absent until the last stages are reached.

Yet it is this very late infection of the glands, etc., that should make malignant disease of the larynx one of the most hopeful for operation. So strongly do I feel this to be the case that I am not willing to attach any value to the statistics at our disposal, for I feel convinced that during the next ten years, as I have already remarked, there will be at our disposal statistics which will place the justification of operation beyond all question. Moreover, this great advance will depend not so much upon improved methods of operation and surer ways of preventing septic poisoning, but even more upon an early diagnosis. These cases are not common, and, consequently, whenever we have an opportunity of inspecting one, we should do so again and again so as to impress on the mind the leading characteristics.

HYPERTROPHY OF THE TONSILS.

CLINICAL LECTURE DELIVERED AT THE METHODIST EPISCOPAL HOSPITAL.

BY WILLIAM R. HOCH, M.D.,

**Instructor in Laryngology in the University of Pennsylvania; Laryngologist
to the Methodist Episcopal Hospital and the Rush Hospital for
Consumption.**

GENTLEMEN,—I wish to speak to you to-day on the subject of hypertrophy of the tonsils, and present to you several cases illustrating the different varieties of this disease. Before taking up the subject from a clinical stand-point, let us review briefly the anatomy of the parts. It is rather difficult to describe, with any degree of accuracy, a normal tonsil. The tonsil in the adult consists of a small, elongated, almond-shaped mass of lymphoid tissue, which lies embedded between the anterior and posterior palatine arches, and does not extend beyond these arches. It presents on its surface numerous openings, which lead into blind pockets (the crypts). The tonsillar mass consists of a collection of lymphoid cells in a stroma of fibro-connective tissue. The whole tonsil is covered with mucous membrane, which extends down into the crypts. The mucous membrane is covered with squamous epithelium on the surface, which becomes cylindrical in its deeper layers. The arterial supply is derived from the dorsalis linguæ, ascending and descending palatine, tonsillar and ascending pharyngeal arteries.

These collections of lymphoid tissue are especially liable in early life to morbid changes, which result, in the great majority of cases, in hypertrophy. By hypertrophy of the tonsil I mean an enlargement of the tonsil which is characterized by an excessive development of the normal histological element of that organ, which necessarily excludes enlargement due to acute inflammation, tumors, etc. We can divide hypertrophy of the tonsil into two classes,—first, the hypertrophic form; second, the hyperplastic form. The hypertrophic form is that in which there is an increase of all the normal elements of the tonsil,

while the hyperplastic form is that in which there is a great increase in the fibro-connective tissue. In the first variety the tonsil is increased in size and the crypts are enlarged and contain whitish masses which consist of dead epithelium and mucus. The tissue consists of lymphoid bodies increased in size and surrounded by an abnormal amount of connective tissue. In the second variety, while there is an increase in the size of the tonsils as well as the lymphoid bodies, there is also a very excessive development of the connective tissue. The crypts are destroyed and obliterated and the blood-supply is diminished. The surface is smooth, with slight depressions marking the obliterated crypts. It is pale in color, hard to the touch, and consists largely of connective tissue. This form is met with more especially in adult life, and has been termed "scirrhus tonsil." Other classifications have been made, and for clinical purposes we can divide tonsillar hypertrophy into, first, the soft or adenoid variety; second, the hard or scirrhus variety, and, third, the ragged. The soft or adenoid variety occurs in children, and is subject to repeated attacks of acute inflammation. This form sometimes disappears about the age of puberty. The hard or scirrhus variety occurs in young adults, and is seldom the seat of acute inflammation. The ragged variety is the result of repeated attacks of inflammation, with the formation of abscesses, which leave the parts ragged.

Symptoms.—The symptoms of enlarged tonsils are mostly mechanical. Respiration is interfered with, which is more noticeable at night, especially in young children; the voice is changed and sounds as if the patient was talking with the mouth full. Swallowing is at times interfered with, but is rarely painful except during an attack of acute inflammation. The diagnosis of tonsillar hypertrophy presents no difficulties, as inspection of the parts reveals the enlarged glands and palpation with the finger shows the nature of their consistence. Both tonsils are usually the seat of hypertrophy, but vary as to the extent, one sometimes being more enlarged than the other. Unilateral hypertrophy in the adult should be viewed with suspicion, as the enlargement may be due to a malignant growth.

The first case that I shall show you is that of Leon D., aged fifteen, a native of Pennsylvania and by occupation an errand-boy, who presents himself complaining of thickness of speech and a fulness in the pharynx, but no pain. On examination both tonsils are found to be greatly enlarged and extend quite a distance beyond the arches. The crypts are enlarged and contain whitish masses, which consist of dead epithelium and mucus. They are soft to the touch, showing that the

enlargement is due to an increase of the glandular elements of the tonsil, and this case, therefore, belongs to the hypertrophic or soft variety.

The second case : S. M., aged thirty-five, complains of a sense of fullness in the throat, but no pain nor difficulty in swallowing. On inspection you will notice the tonsils are somewhat enlarged and smooth, and the crypts are obliterated, pale in color, and hard to the touch. This case, therefore, belongs to the hyperplastic form.

The third case : Thomas K., aged seven, has had difficulty in speaking, and his parents report that he has never been able to speak plainly. When he speaks you will notice that the voice is thick, and it is with much difficulty that he is understood. The tonsils are enormously enlarged and extend deep into the oro-pharynx. The crypts are blocked with débris, and they are quite soft to the touch, showing that we have to deal with the adenoid variety, in which the glandular elements predominate.

The fourth case : Isabella R., single, aged twenty, is a native of Ireland, and by occupation a servant. She complains of having had repeated attacks of tonsillitis and on several occasions abscess of the tonsil, the last attack occurring some weeks ago. She complains of slight pain and difficulty in swallowing, and you will notice that the voice is quite thick and she talks as if her mouth were full. On inspection you will see the tonsils are enormously enlarged, extending almost to the median line. During the acute attack the tonsils actually met and the uvula was pushed behind them. The tonsils are ragged, the result of previous attacks of tonsillitis with abscess. This case, therefore, can be classed with the third variety.

Prognosis.—While hypertrophy of the tonsil of itself presents no danger, it does constitute a serious menace to the general health, as well as the added danger of contagion. A child with enlarged tonsils is certainly more susceptible to the infectious diseases, and in an attack of diphtheria or scarlet fever the hypertrophy constitutes a serious complication. Enlarged tonsils sometimes undergo atrophy at the age of puberty, and the question may be asked, Why remove them? if in a few years the hypertrophy may disappear. That there is a tendency to shrinkage in some cases is well known, but not in all; and why should we allow a child to be exposed to the added danger in case of an attack of diphtheria or scarlet fever, when removal will reduce the danger? Besides, there is no certainty that hypertrophied tonsils will shrink at the age of puberty.

Treatment.—We now come to consider the treatment of these cases,

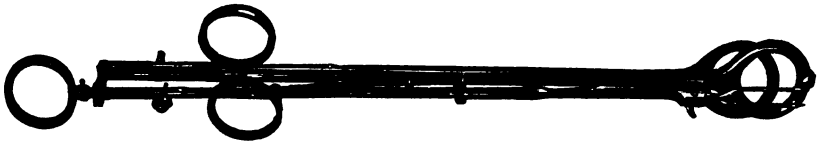
and many different things have been suggested and used. General constitutional treatment has no perceptible influence on the enlargement. The local applications of a solution of iodine or astringents such as glycerite or tannin and tincture of the chloride of iron have but a slight influence. The soft tonsils shrink somewhat under local applications, but not to any extent, and this method of treatment is practically useless and a waste of time. The hard tonsil is uninfluenced by any such treatment. Injections into the tonsil of tincture of iodine and dilute acetic acid have been used. Destroying the hypertrophy by caustics is both painful and slow. Electrolysis has been used, but its action is slow, requiring numerous sittings to accomplish any result, and therefore is not applicable to young children. Repeated puncturing of the gland with the electro-cautery finds some advocates.

None of these methods being entirely satisfactory, what method are we to use? To this I unhesitatingly reply removal by means of some suitable surgical instrument, such as the bistoury, snare, scissors, or tonsillotome. In operating with the bistoury the tongue is held down by an assistant or the patient, and the tonsil is seized with a tenaculum, drawn out from its bed, and cut off. I am not an advocate of this method on account of the danger of injuring the surrounding parts. With regard to the snare, either the cold or galvano-cautery can be used, and in operating on the hard variety the cold snare is probably the most suitable instrument. A strong instrument armed with a heavy steel wire should be used, the wire loop being thrown around the tonsil and gradually tightened. A good way is, after adjusting the loop, to allow the patient to turn the milled head by means of which the wire is drawn home, stopping when it becomes quite painful, and commencing to turn again when the pain has subsided. It is necessarily a slow method, several hours being consumed in cutting through the growth, but it is almost entirely bloodless, a decided advantage in an operation on the hard variety when there is danger of hemorrhage. The galvano-cautery snare possesses no decided advantage over the cold snare. This operation also is bloodless. The loop is adjusted and the current turned on, when the growth is gradually burned through. The operation requires from fifteen to twenty minutes, and is exceedingly painful. Of course, the use of either of these instruments is out of the question in children, except when a general anæsthetic is used. The scissors have been highly recommended, and are useful instruments in operating on the ragged tonsil, or where the tonsil extends deep down into the pharynx.

The most serviceable instrument, however, is the tonsillotome. An

operation with it is certainly safe, as there is no possible danger of injury to the surrounding parts or the deeper structures. There are several varieties of this instrument, among which may be mentioned Mackenzie's, Mathieu's, and the various modifications, but it is a matter of individual preference which one is used. Mackenzie's is a good instrument and is used by many, but my own preference is for the Mathieu (Fig. 1). It is necessary to have several of these instruments with different-sized openings. Referring to the question of the use of a general anæsthetic, my opinion is that in the great majority of cases it is not necessary, as the operation is so quickly over and is not exceedingly painful. In young children and nervous females an anæsthetic is sometimes necessary. In operating with the tonsillotome we

FIG. 1.



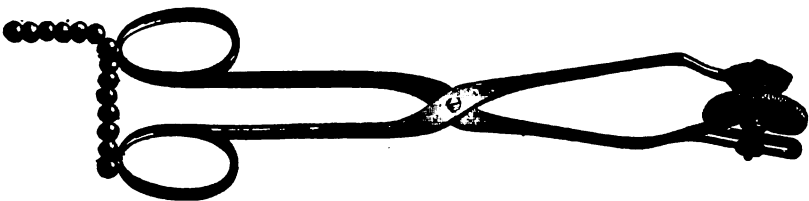
The Mathieu tonsillotome.

first apply a four-per-cent. solution of cocaine to the tonsils and surrounding parts,—namely, the palatine arches, soft palate, and base of the tongue. This is done not so much to allay the pain, but to make the surrounding parts less sensitive, so as to facilitate the adjustment of the instrument. The tongue should be held down with a tongue-depressor or the finger. The instrument is then introduced and the ring is passed over the lower portion of the tonsil first, and crowded over the whole mass. Sometimes it is well for an assistant to make external pressure over the tonsil in order to include more of the tissue. The tongue-depressor is then removed, and when the tonsillotome is well adjusted the blade is drawn home and the mass included in the ring is removed.

The operation is followed by quite free bleeding, but this usually soon ceases. Occasionally, however, the hemorrhage is not only profuse, but lasts for some time. Quite a number of cases have been reported in which alarming hemorrhage has occurred, and, while these are the rare exceptions, the fact remains that they do occur, and this should put us on our guard. Both Delavan and Bosworth say that a fatal hemorrhage has not been recorded. The possible sources of hemorrhage are hæmophilia, an anomalous distribution of the arterial

supply, an enlarged tonsillar artery, or a wound of the venous plexus at the lower border of the tonsil. Before operating on any tonsil inquiry should be made as to the possibility of the patient being a bleeder. An enlarged tonsillar artery can sometimes be made out by palpation. The hyperplastic tonsil is most liable to give rise to troublesome hemorrhage, as, this variety of tonsil being composed largely of fibro-connective tissue, the vessels do not readily contract. Secondary hemorrhage is also liable to occur, and comes on some hours after the operation. To arrest hemorrhage one at first turns to the use of styptics, but I do not recommend them unless it be the gallo-tannic-acid mixture, composed of one part of gallic acid and three parts of tannic acid, made into a thick mixture with water and slowly sipped. This mixture is highly recommended by Mackenzie. The other styptics only form a coagulated mass and do not control the hemorrhage. I have used in several cases of bleeding, with some success, hydrogen peroxide, and this may be tried. If these measures fail, then the first thing to do is to inspect the parts and find the source of the hemorrhage. If it be from a small artery, an attempt should be made to seize it with the forceps and twist it, but very often the bleeding is simply an oozing from the entire cut surface. Pressure is probably the best means of controlling hemorrhage in such cases, and to do this the thumb is covered with gauze and the stump is caught by the thumb on the inside and the finger on the outside. Several instruments have been devised for this purpose, one by Mikulicz (Fig. 2) and one by

FIG. 2.



Mikulicz's instrument for compressing the stump after tonsillectomy.

Clendennon, and both are useful. Both the galvano- and Paquelin's cautery may be used, and ligature of the carotid can be tried as a last resort.

I have dwelt at some length on the occurrence of hemorrhage, in order that you may be on your guard and be prepared to meet any emergency that may arise. Of course, in hæmophilia, or where there is an anomalous distribution of the blood-supply, a cutting operation is

contraindicated, and a snare should be used. I think the danger of hemorrhage after tonsillotomy is not great, especially in children. In the adult this danger is greatly increased, and I believe all cases reported of serious hemorrhage have occurred in adults.

The after-treatment is exceedingly simple. The patient should remain quiet, and be kept on a liquid diet for from twenty-four to forty-eight hours, after which a soft diet should be employed until the wound heals, all spices and condiments being avoided. The wound heals by granulation within a few days. All exposure to septic contagion should be carefully avoided.

ADENOID VEGETATIONS OF THE NASO-PHARYNX.

CLINICAL LECTURE DELIVERED AT THE BALTIMORE MEDICAL COLLEGE.

BY S. K. MERRICK, M.D.,

Professor of Diseases of the Nose, Throat, and Chest, in the Baltimore Medical College, Baltimore, Maryland.

GENTLEMEN,—The boy whom I now show you is named Andrew Scott, a mulatto, aged eight years, and he is one of five children, all of whom are healthy and normally developed, mentally and physically, except himself. His mother and father are both living and healthy, the former thirty-six years of age, and the latter forty. The facial conformation and expression are so remarkable in this boy that no one would fail to note them, even on the most casual observation. (Fig. 1.) You observe the undue prominence of the eyes and bridge of the nose: while there is marked broadening of the nasal bridge, as well as bulging forward, there seems to be faulty development of the nose towards the tip and nostrils. This is undoubtedly due to some extent to non-usage; but that it is largely congenital we are assured by the mother. The marked prominence, however, of the upper portion of this organ at the bridge makes the deficiency of the nasal development at the lower extremity more noticeable.

You will observe that the boy's mouth is open, the lips parted and protruding, and the lower jaw drooping so as to leave the inferior incisors separated at least half an inch from the upper ones. This is done to give ample room for air to pass into the lungs, for his respiration is carried on exclusively through this channel. This is easily proved by raising the inferior maxillary bone by placing the hand under the chin and pressing upward until the inferior meet the superior incisors. At once the angles of the mouth are drawn downward and outward, so as to admit air between all the teeth, and then the amount seems insufficient. If I close up one nostril by pressure with my finger, and tell him to blow his nose, I find little or no air is forced



FIG. 1.—Characteristic facies in a case of adenoid vegetations of the naso-pharynx.

through the other nostril; the same experiment reversed proves the other nostril equally impervious to air.

His mother tells me the boy has never breathed through his nose since birth, but always through his mouth. The condition which causes this nasal obstruction is doubtless congenital, and the family history fails to throw any light on the etiology.

This conspicuous facial deformity, reaching almost the condition known as "frog-face," results usually in children from *one* cause,—namely, a tumor, and that a fibroma, in the naso-pharynx or nose. As these growths increase in size, they press against the neighboring parts, sometimes sending prolongations into adjacent cavities, and, when the tumors are very dense and large, carry bones and cartilages in front of them, resulting not infrequently in ultimate destruction of both osseous and cartilaginous structures by absorption.

The growth which is most commonly the cause of such extensive pathological changes in this region is, as I have said, the fibroma. As the case before us is one dating back to foetal life, a much less dense growth than fibroma could have produced the facial deformity we have here, as it is evident from the history that the growth filled the naso-pharynx at birth, and had no doubt been pressing the facial bones forward during a considerable part of foetal life, before they were firmly united, and while the junctions between them were largely, if not entirely, cartilaginous. Broadening and flattening of the bridge of the nose are generally observed, and not broadening and bulging, as a result of adenoid vegetations; hence this case is rather unique, should the diagnosis prove correct. It is extremely probable that we shall find, not a fibroma, but adenomata,—*i.e.*, adenoid vegetations in the pharyngeal vault. What makes this more probable is that the fibroma, if it occurs at all in the pharyngeal vault in the negro, is an extremely rare condition.

Bosworth makes the statement, in his book published in 1889, vol. i., on the "Nose and Naso-Pharynx," that there is not a well-authenticated case of fibroma of the naso-pharynx in the negro on record. I have personally had, I suppose, as large an experience in dispensary practice among this race as any one in this latitude, extending over a period of nearly twenty years, and I have yet to see my first case. This is quite remarkable, as uterine fibroids are very common in the negro. I have never seen any explanation of this singular behavior of fibromata in this race, and I offer none myself.

The boy's hearing is seriously impaired; and as the drum-membranes are normal in appearance, we may assume the faulty hearing to

be dependent on the growths in the naso-pharynx, which we shall undoubtedly find. I shall have a photograph of this boy made, to accompany this lecture, which will be published, as the case is one I deem worthy to be recorded and pass into literature, while the physiognomy is one which should not be lost, but should be reproduced in text-books as typical of the *severer* forms of adenoid vegetations in the pharyngeal vault when they are congenital, or appear possibly in early infancy.

Not only aural disease results from these vegetations at the vault but failure of normal development of the mental powers in some cases. The term aprosexia has been given by Guye to the mental condition associated with and dependent upon these adenoid vegetations in certain severe cases. The boy's power to learn is far below that of any of his brothers or sisters; his mother has noticed his dulness and backwardness compared with other children of his age, and this has been a cause of much grief to her.

In the most pronounced cases of this affection, dulness and stupidity have generally been noted by many careful observers (yet Bosworth does not agree with them), and every lineament of this boy's countenance bespeaks mental lethargy, inaptitude, and stupidity.

Aprosexia, which is defined in "Billings's Medical Dictionary" as "inability to fix the mind upon a subject or retain a lesson," seems to me a very good definition of the mental condition present in the case before you.

I shall now proceed to verify the diagnosis, of which I have not the least doubt. There are two methods of doing this, both very reliable in the hands of the experienced operator.

It is of course desirable to get a rhinoscopic examination. This is the first method; but failing in this, as we often do with young children, digital exploration into the naso-pharynx is the second method, and one that can be used at any age in any case, whether the patient is willing or unwilling.

The mother will now be seated at the laryngoscope and take the boy upon her lap, and by temporizing and gradually getting his confidence it is possible that a good view of the naso-pharynx may be gotten.

I now train the light upon the boy's mouth, and attempt to use the tongue-depressor, preparatory to introducing the rhinoscopic mirror; but I find the teeth clinched, and determined resistance to any examination. It will be sheer loss of time to persist with such an obstreperous patient; so recourse will be had to the second method,—viz.,

digital exploration. I first use the mouth-gag, so as to prevent him from biting; and now, having him securely gagged, I introduce my index-finger behind the soft palate and at once encounter a large, soft mass, filling the entire naso-pharynx down to and even below the level of the nasal floor, thus preventing all or nearly all nasal respiration. The diagnosis of adenoid vegetations at the pharyngeal vault is confirmed, and I now remove the mouth-gag until I am ready to operate.

I desire, first, to tell you something of the etiology and pathology, some additional facts about the diagnosis and symptomatology, the prognosis, and, lastly, the treatment, with a practical demonstration of my favorite way of dealing with such cases as the one before you.

Etiology.—Adenoid vegetation of the pharyngeal vault is a pathological condition, having its inception in childhood, I believe, in nearly all instances. There are two varieties of these growths: one where the tumor is single, and usually moderate in size, being often fissured into two, three, or even more lobes,—the fissures running in an antero-posterior direction. The other variety is where there are several and, sometimes, many vegetations, growing not unlike a cluster of grapes, and feeling to the touch, as Meyer, of Copenhagen, aptly said, “like earthworms.”

I have just said that this disease is essentially one of child-life, and I wish to add to this statement that it is probably much more frequently congenital than is generally supposed; yet I find nearly or quite all the authorities whom I have consulted admit the possibility of such an origin, and a few who believe it not infrequently has its beginning in foetal life.

Nearly every author will tell you that these hypertrophies show a tendency to atrophy and disappear at or about puberty. It is alleged that lymph-tissue, of which these structures are chiefly composed, has a disposition to lose its morbid activity at this age, and therefore we should have many spontaneous cures, especially in the milder cases.

While it may be admitted that there is an arrest of morbid activity and development of this tissue in a small per cent. of the cases, and that apparent spontaneous shrinking takes place at puberty, my own experience leads me to the conclusion that this is the exception and not the rule. I have never been able to fix any age at which any considerable number of cases recover spontaneously. I agree with those who assert that after thirty the disease is rarely seen, and indeed after twenty-five the cases I have seen are not numerous; yet I cannot subscribe to any statement as to age-limit less broad than this,—viz., that after twenty there is a marked falling off in the number of cases

occurring, until after thirty, when they become very rare, and it is doubtful if a case ever develops after this age.

In 1868, Wilhelm Meyer, of Copenhagen, placed the profession and humanity under a lasting debt by presenting a paper, embracing a study of one hundred and two cases of this disease, at once so comprehensive and exact, viewed from every stand-point,—etiological, semeiological, pathological, and therapeutical,—that little or nothing has been added to our knowledge of the affection, although more than a quarter of a century has passed since that date.

This classical paper marked a distinct era in medicine, added lustre to the name of the author, made plain the way for his professional brethren, and opened a new and extremely useful field for investigation and treatment, which has resulted in saving the hearing of thousands of children. At the present time the medical profession of the entire civilized world are paying homage to the name of Wilhelm Meyer by raising a fund to erect a monument to his memory in the city of Copenhagen.

The one hundred and two cases reported by Meyer occurred at the following ages :

	Cases.
Under 5 years	8
Between 5 and 10 years	84
Between 10 and 15 years	25
Between 15 and 20 years	21
Between 20 and 30 years	1
Between 30 and 35 years	4
Between 35 and 40 years	1
Between 40 and 45 years	2
Total	<u>102</u>

Bosworth reports seventy-five cases occurring at the following ages :

	Cases.
Under 10 years	5
Between 10 and 15 years	16
Between 15 and 20 years	27
Between 20 and 30 years	23
Between 30 and 40 years	2
Between 40 and 50 years	1
Above 50 years	1
Total	<u>75</u>

I have taken thirty-two cases, most of them treated since June, 1894, from my private practice, except the case before you, whose ages range as follows :

	Cases.
Under 10 years	5
Between 10 and 15 years	12
Between 15 and 20 years	11
Between 20 and 30 years	8
Between 30 and 40 years	1
Total	<hr/> 32

Meyer treated more cases between five and ten years; Bosworth more cases between fifteen and twenty; while I treated more between ten and fifteen years. Bosworth's and my own statistics certainly negative the proposition that any large number of cases recover spontaneously at puberty. Heredity exercises a decided influence in the etiology of adenoid vegetations, as a number of authors, including myself, have not infrequently operated upon several members of the same family. They occur in both cold and temperate climates with about equal frequency. The factor of heredity is generally given by nearly all writers as an element in the etiology.

The complications or associated conditions with which I have most frequently met are hypertrophy of the faucial tonsils, impairment of hearing, and follicular pharyngitis. In two of my cases there was hypertrophic rhinitis, but in most cases the nose was free from disease. This is the experience, I think, of most observers. In concluding the remarks on the etiology, I desire to say, that of all the factors, I believe that the exanthematous fevers and accompanying catarrhal conditions, together with repeated and often neglected colds, cause by far the majority of the cases of adenoid vegetations at the pharyngeal vault.

Pathology.—The essential morbid change which takes place in hypertrophy of the pharyngeal tonsil is analogous to that seen in enlargement of the faucial tonsils, and consists in both instances mainly of a hyperplasia of the lymph-tissue. In the pharyngeal tonsil the development of the connective tissue is very slight generally, while in the faucial tonsils this tissue is more developed and the tonsillar mass is in consequence much firmer to the touch than that at the pharyngeal vault. The impact of food has also, no doubt, something to do with the difference in the density of the growths. Occasionally, however, I have encountered adenoid growths at the pharyngeal vault where there was a large amount of connective tissue present; the growths were hard to remove and the hemorrhage was profuse. These, in my experience, are more frequent after than before puberty. In view of this fact, I think all cases operated on after puberty should be examined by touch,

especially if the appearance of the growth rhinoscopically is at all suspicious, as the method of attacking a highly vascular growth often has a very important bearing on the result.

Symptomatology.—The symptoms will vary with the size of the growth, but there is usually an increase of secretion at the vault, running down the pharyngeal wall, and where there is much nasal obstruction present, as in the case before you, the nasal fossæ will be more or less completely filled with a tenacious mucous or muco-purulent secretion, which the patient is often unable to dislodge,—this being especially true with young children.

While this catarrhal condition will be one of the first symptoms of the disease, there is another often coexistent with it,—viz., the “dead voice,”—i.e., the voice without resonance, and closely simulated by the voice attendant upon a severe acute coryza. In the cases where the “dead voice,” so called, is present the patient will usually pronounce the consonants *m* and *n*, “*eb*” and “*ed*.” In my experience this occurs only when the growth is large. The patient before you will now be asked to pronounce the two consonants, and you observe he can not do it, but calls them “*eb*” and “*ed*.” Considerable stress has been laid upon the facial expression by various authors as a symptom of adenoid vegetations. When present it is a most reliable symptom of growths of some kind in the naso-pharynx or nose, but this symptom is only present in the severer cases,—the case before you being a most typical one. This symptom has not been present in more than ten per cent. of my cases, I am sure.

Mouth-breathing is a far more common symptom, and is present to a greater or less degree in nearly all cases when the patient is under fifteen years of age and the growth is moderately large, and in many cases when the growth is comparatively small. Obstruction in the naso-pharynx from any cause may give rise to this symptom.

The foregoing symptoms being present in any case with concomitant impairment of the hearing in a young person, the conclusion almost inevitably follows that the case is one of adenoid vegetations at the pharyngeal vault. Associated, therefore, with these symptoms impaired hearing must be regarded as a symptom of the first importance.

Nasal stenosis is a prominent symptom in most cases; even when the growths are not very large, this is often present from swelling of the turbinates, especially at night when the body is in the recumbent position. Gravity no doubt explains, in a measure, this phenomenon.

Cough, headache, asthma, epistaxis, and nightmare have been referred to by some as symptoms of the affection under consideration, but upon them I place little reliance, and only mention them to discredit their significance and reliability, even when present.

In most cases of adenoid vegetations the general health is not seriously impaired, the disturbances being almost exclusively local and limited to the naso-pharynx, pharynx, nasal fossæ, and Eustachian tubes. The aural complication is, to my mind, the most serious consequence of the disease. In three of my cases reported above the patients were very much stunted in growth, and one of them grew four inches in one year after operation,—the other two I have not heard from. I believe the general malnutrition and lack of physical development, which is undoubtedly present in a certain per cent. of cases, will be found (on close study of such cases) largely among those whose mouth-breathing has been marked from an early stage of the affection.

The case which I exhibit to you to-day is a case representing a class among these cases, which is rare and typical only of the severest forms of adenoids at the pharyngeal vault, with some of the symptoms probably never occurring except when the disease is congenital.

These symptoms are bulging of the eyes and bridge of the nose. The cause of these phenomena has been mentioned already in my remarks, and no further reference to them is required.

Diagnosis.—Much was said on the diagnosis of this affection in the introductory remarks at the beginning of this lecture, and little will be added. Remembering the symptoms which have been enumerated under the head of symptomatology, all or most of which occurring together, nothing will be left to make certain the diagnosis but a rhinoscopic examination (if feasible) or digital exploration into the pharyngeal vault. Of the methods I have already said sufficient.

Prognosis.—The prognosis, in the vast majority of cases, is favorable, not always, of course, in the same degree. When the patient is under fifteen years and serious aural disease has not supervened, the chances of complete recovery in every case are good. Indeed, in most cases, when the hearing is affected in children from the presence alone of adenoids at the vault, entire recovery may be expected to take place after their removal, it being exceptionally rare that great benefit does not speedily follow.

In two of my cases the hearing was $\frac{2}{40}$ and $\frac{4}{40}$ respectively before operation. After operation it was normal in one case in ten days, and $\frac{12}{40}$ in the other.

The patient whose hearing was entirely restored was seventeen years and the other twenty-nine years old. We see, therefore, that even with adults much may be expected; we are therefore justified in most cases, be they children or adults, in expecting some amelioration, even though the disease be of long standing, as was the last case above named, unless serious organic changes in the middle-ear have taken place. Even in the worst cases of ear complications I believe the operation should be advised, as the results are often much better than we anticipate.

In fact, it is the only rational method of treatment both for the naso-pharynx and the pharynx, and catarrhal disease of the Eustachian tubes will not get well as long as the condition which caused it remains *in statu quo*.

It must be admitted, however, that now and then a case will be encountered when, after doing all we can, a catarrhal condition of the naso-pharynx will remain to annoy the patient. Generally such cases are adults, and in some of them disease of the sphenoidal cells takes place, and an exceedingly intractable condition is the result. This is a very unfavorable complication.

These cases are, however, so few in number that they need not be taken into serious account when the prognosis is given, hence a favorable prognosis can safely be made in nearly all cases.

Treatment.—Some authors recommend the use of astringent sprays and believe in some instances much good may result, but few believe that any more than improvement in some of the annoying symptoms takes place. Not infrequently the patient will come under observation during an attack of acute rhinitis, and the neighboring structures, including the adenoids, will participate in the active inflammatory process which is going on. Under the circumstances, mild alkaline antiseptic sprays, followed in each instance by a mild astringent spray, is not only advisable but distinctly indicated, and should be continued until the swelling and inflammation have subsided. The long-continued use, however, of alkaline and astringent washes, whether used as a spray or as a douche, with the expectation of producing shrinking and atrophy of these growths, will be disappointing. Except the benefit which follows thorough cleansing, none in my opinion will take place from the sprays.

I wish, in passing, to record my unqualified condemnation of the douche in adenoid vegetations as dangerous. I go further, and say it should be condemned in all cases attended with nasal obstruction, and it is not without danger even in cases where no obstruction exists. I

speaking not from theory, but from personal experience. I am almost ready to subscribe to the sentiment expressed by some writer who declared, "The only proper place to point the nozzle of a douche is out of the window." In atrophic rhinitis it is, however, very valuable, and the atomizer cannot take its place.

The only hope of a complete cure will be found in instrumental interference or destructive cauterization. While cures have undoubtedly been effected by chemical cauteries, the latter have their drawbacks, are tedious in their action, and not to be commended in the presence of the more modern and much more effective electro-cautery. In the absence of the latter the best of the chemical cauteries is chromic acid. A silver or aluminum probe bent at the proper angle, dipped in mucilage and then in some crystals of the acid and fused over a flame into a bead, is the proper method to adopt to insure safety and facility of manipulation in the operation. I shall mention no other chemical cauteries, for this is by common consent the best.

The electro-cautery is far preferable to chromic acid, and in skilful hands in certain cases is an excellent agent for the destruction of these growths. When the growths are not large and the patient is old enough to offer no resistance to the operative procedure, this method may take precedence of all others. This class of cases, however, will constitute a small per cent. of those calling for operation, and reliance, in the main, will have to be upon other methods.

To enumerate all the methods and instruments which have from time to time been successfully employed by operators would carry us far beyond the limits of this lecture, might lead to confusion, and certainly would lead to no useful result, as some of them are practically obsolete.

I shall content myself with naming generally those which are most in vogue at the present day, and particularly those which I prefer myself.

The post-nasal cutting forceps of one pattern or another is deservedly popular, and the particular instrument which I prefer is Mackenzie's, which I hold in my hand. There should be made one forceps with the jaws to move transversely, another with jaws to move antero-posteriorly. Lowenberg's I sometimes use, but they have a more limited field of usefulness. Curtis's forceps and Major's adenotome are both excellent instruments for the removal of adenoids at the vault.

After the forceps comes the cold wire snare, which for a time was much used in suitable cases, but unless the patient is at least twelve years of age or a general anæsthetic is resorted to, the snare will gen-

erally be found inapplicable. I have frequently operated with the snare, and like it in those cases to which it is adapted,—viz., where the tumors are sufficiently pediculated and when the patient is old enough to offer no resistance. The galvano-cautery loop is difficult of manipulation and inferior, even when its application is feasible, to the cold wire snare.

Some authors recommend the use of the index-finger as a curette, scraping and tearing the growths away with the finger-nail. I have found this method unsatisfactory and have long since abandoned it. I have never been able to fully eradicate the growths by this method, recurrence of the growths following, as a rule. Bosworth's curette is a very good instrument, but the one I have used most is Gottstein's, which I now show you, and which is particularly well adapted to large tumors, such as exist in the case before you, and I shall operate with this instrument to-day. It has this advantage over most curettes, that it both curettes away tissue and crushes what is left behind at the same time.

Now, gentlemen, without further remarks I shall proceed to operate on this boy, who will be seated on the operating table facing the operator and the audience. One assistant approaches him from behind and places his arms around the body of the boy, including his arms. Another assistant at his right seizes the head between his hands, while still another stoops at his left, seizes the boy's legs under the table, and draws them firmly backward. I now again insert the mouth-gag, cocainezing the parts, and wait a minute or two, and he is ready to be operated upon. The instrument is thoroughly sterilized.

Seizing firmly the curette with my right hand, elevating the boy's head, I introduce the instrument behind the soft palate, pulling it forward and pressing the curette upward, hugging the vomer, and now with considerable force I sweep the instrument upward and backward, severing the growth and at the same time crushing any soft, friable lymph-tissue which may not be cut away. As a result here is a tumor half the size of a pullet's egg, which fell out of his mouth on the floor as I threw his head forward after completing the operation. The growth I find, on a mere macroscopic examination, to be a characteristic adenoid formation, and I now pass it around for your inspection, after which it will be sent to the pathological laboratory and sections made of it.

The subsequent management of this case will be left to my assistant, with these instructions: Spray the nose and naso-pharynx daily with Dobell's solution, followed with the following on each occasion :

R Acid. carbolic. liq., gtt. iv ;
Acid. tannic., gr. xxx ;
Glycerin., ℥i ;
Aquæ, q. s. ad ℥vi.
Sig.—Use in an atomizer as directed.

Before dismissing the class I wish to say I do not believe in the practice of giving ether or chloroform for these operations unless the case cannot be operated on without. I have used laughing-gas in two of my cases ; in all the rest I have relied on local anæsthesia with cocaine. In few cases have I found even a mouth-gag necessary. Once the doctor gets the entire confidence of the patient, the cocaine can be well applied, and the pain in most instances is inconsiderable. I use a five-per-cent. solution of cocaine, and always apply it on a cotton applicator, carefully squeezing out any excess of the solution by pressing the wad firmly against the neck of the bottle. With this precaution few accidents will happen from cocaine.

It may be necessary to have several sittings before all traces of the adenoids are removed, but in many cases the one operation, as you have seen it done to-day, will be all that is needed.

The chloroforming or etherizing of a patient renders hemorrhage much more dangerous should it occur, magnifies the operation in the eyes of the patient, and subjects more people to inconvenience and anxiety, not to mention the actual danger of the anæsthetic itself.

The percentage of fatal accidents from chloroform or ether, compared with the total number of operations done under its use, is very small, but in view of the fact that no one can say in any given case that it will not be one of them, no operation should be done with these anæsthetics where a good result is possible without them. I would not discontinue them entirely, but greatly restrict their administration in the surgical operations upon the upper air-passages.

Dermatology.

ECZEMA SEBORRHOICUM (SEBORRHÆIC ECZEMA) AND ITS TREATMENT; PUSTULAR ACNE, WITH SECONDARY INFECTION; ICHTHYOSIS HYSTRIX.

CLINICAL LECTURE DELIVERED AT THE MARION-SIMS COLLEGE OF MEDICINE.

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ECZEMA SEBORRHOICUM (SEBORRHÆIC ECZEMA) AND ITS TREATMENT.

GENTLEMEN,—The case which I will present to you to-day is one of interest, because it illustrates a comparatively new disease, in so far as it has only lately received a distinct name. It was first described in 1887 by Dr. P. G. Unna, of Hamburg, and it presents points of similarity to other cutaneous troubles, which sometimes make it a difficult matter to differentiate. The disease is known as seborrhœic eczema, because the leading features of seborrhœa and of eczema are presented in this trouble. We find that in the patient before us, a man of forty-five, his chest (which is hairy) is the seat of the affection. At first glance you would pronounce it either seborrhœa or psoriasis, but the marked itching of which he complains would force us to abandon such an opinion. Let us examine the lesions more closely, and we may perhaps arrive at a more definite idea of the trouble. Upon close inspection we find that they are roundish areas, of a rather light red color, which are sharply defined, and which vary in size from a finger-nail to two inches in diameter, these patches numbering perhaps eight. The borders are somewhat elevated, and scales apparently cover them. When we attempt to remove these scales we find that they are separated with some difficulty, and that they consist largely of fatty material. The surface which is exposed has more or less of a raw appearance, and there is a slight moisture apparent. These are the principal points, and such as are sufficient to enable us to make a differential diagnosis.

In seborrhœa we find the itching rather moderate ; the scales when detached show more of a dry surface, and the redness which is present is not so intense. There is not such a thickness apparent about the edges, and the crusts are drier. In eczema we have no fatty scales, nor do we find them in psoriasis. In the former affection, when it is scaly, there is a history of previous lesions, and the itching is of a more intense character, manifesting itself markedly when the patient's skin is exposed to the air. In psoriasis, as I have stated, the scales are horny and of a silvery appearance. When they are removed a number of minute bleeding points show themselves, and the itching is of a rather mild character.

Such are the salient points to be remembered in making a differential diagnosis. The trouble before us shows by its objective characteristics that it is distinctively inflammatory in character. The question which presents itself for consideration is as to what structures are involved in this inflammatory process. First we have the coil or so-called sweat-glands. In these the process has penetrated into the tubes, and we have a hypersecretion of fat taking place. This finds its way to the surface, producing the accumulation which presents itself in the form of crusts or scales. Furthermore, the inflammation extends upward, and involves the mucous layer of the skin and the layers above this, giving that general inflammatory appearance to the patch which is observed. There is a tendency in the process to spread slightly and to become disseminate. The disease is encountered at almost all ages. Children are seen affected by it as well as adults ; but it is about the middle period of life that it is most frequently encountered, and more often in males than in females.

The treatment is rather simple, and, as a rule, it is effective. The method which we will use in this case is the one generally followed, and which produces good results. As a preliminary, the patches are to be covered with a thin layer of *sapo viridis*, and this removed with water. The effect is to remove whatever scales are present, and in that manner present a surface which will be in a suitable condition for the treatment proper. This latter consists in anointing the patches twice daily with the following :

R Zinci oxidi, ʒss ;
Sulphuris loti, ʒi ;
Adipis benzoati, ʒi. M.

If this should fail, or not produce sufficiently rapid or satisfactory results, I will order our compound chrysarobin ointment, which, as you know, is composed as follows :

R Chrysarobini, gr. xv ;
Acidi salicylici, ʒi ;
Ichthyol., ʒss ;
Adipis, ʒi. M.

This may prove irritating, but whatever symptoms of this nature are awakened will quickly yield to the soothing effects of a mild zinc oxide salve. One point to be observed in connection with this affection is its proneness to relapse. Because a case is apparently cured, we must not relax our vigilance, but keep on observing it and continue some mild form of stimulation until a sufficient interval of time has elapsed to give us a reasonable assurance that the result is permanent. As you will have an opportunity to observe, the trouble will readily disappear, and, as generally occurs in these cases, the patient will fail to return until the disease reappears, which will take place in about a month's time. Then he will be more apt to follow directions concerning future visits, and a reasonably successful result may be expected.

PUSTULAR ACNE, WITH SECONDARY INFECTION.

This case is one of acne, which you have seen, I believe, a couple of times before, and which presents certain effects illustrative of the infectious character of an apparently innocent disease. If you will remember, this woman suffered from pustular acne of the face, which had supervened upon a papular form. She said she had been under treatment for a number of years for the trouble, and, with the constant relapses, her face was continually breaking out again, and all the applications that were given to her (of whose nature I am ignorant) did not seem to produce any benefit at all. When she first came here, the left hand, if you will remember, had a suppurating point in the palm, and her right knee had two, the latter of which, you see, are still present. It seems that the suppuration of the acne was transferred to the palm of the hand and to the left knee, both of which points could be easily reached by the right hand, which might be used to scratch the face and open the pustules, and in that manner carry the infection from one to the other. As you see, her face is considerably improved ; in fact, it is nearly well. The erythematous remains of the inflammatory trouble will disappear completely with the use of some reducing agent. I have seen her a few times since, and she says there never were any more pustules formed, and this is simply due to the fact that she was treated in a manner designed to prevent suppuration, and that is a point upon which I always insist in these cases of suppurating troubles in which the disease is normally of a papular character. There

is no doubt in my mind that acne is originally a papular disease. Papules, varying in size from say a pin-head to a split pea, appear upon slight irritation upon the face, shoulders, and chest, and, as you are aware, involve the sebaceous glands. When we have these papules present, which are of rather a chronic character and have a tendency to remain a long time, we have the patient promenading about and coming into contact with micro-organisms which are constantly floating in the air, and, in the case of acne, it is the micrococcus pyogenes albus or aureus which, falling into the openings of the ducts of the glands, develops there and produces pus. That is the reason why in acne you find that the pustule always begins at the top and goes down, while in the furuncle we have the suppuration beginning below and going upward, because the area of involvement in the latter is in the subcutaneous connective tissue, but in the papule of acne the micro-organisms drop into the ducts of the sebaceous glands. The duct of the gland, however, is partially filled with sebaceous matter, and as a result you have the pus confined to the apex of the papule, and you have pustular acne developed. In some cases this development of pus continues until quite a large pustule is formed. In the mean time you have other papules developing, and you have a mixed form of acne, the papulopustule showing itself. If there is an infection present it is due to a micro-organism, whose cultivation in the duct and transference to any other part of the body is liable to occur. This is more apt to take place in portions which are provided with glands. In that manner we find that in the right hand of the patient, the palm of which is provided with large coiled glands whose orifices are also large, when no particular care was taken suppuration took place, and so with the right knee, where there seem to be several foci of suppuration.

The treatment which was adopted in this case, and which was quite successful, as you see, was, in the first place, to make the patient wash herself daily with a bichloride solution of one in five hundred; and here I wish to say that whenever you apply bichloride solutions to very limited portions of surface it is not necessary to be so careful about the strength. There is no danger of any toxic effects in her case, because the surface is quite small. If you take into consideration the whole amount of bichloride which might be absorbed, it is less than you give internally. In fact, the stronger the solution the less danger. As you are well aware, when you inject saturated carbolic acid into a carbuncle there is no more danger of intoxication than when you use a five-per-cent. solution; in fact, there is less danger, because the action of the stronger solution coagulates the albumen and it encapsulates itself,

whereas in the other case, not being strong enough to coagulate the albumen, there is an absorption of the remedy and consequent intoxication.

In addition to that, she was given a sulphur ointment of the following strength :

R Sulphuris loti, ʒi ;
Hydrarg. oleatis (5 per cent.), ʒss ;
Adipis benzoati, ʒiiss. M.
Sig.—Apply at night.

We took the precaution that the wash should be applied early in the evening and the ointment at bedtime, in order that we might not have a union of the bichloride of mercury with the sulphur, and a consequent black precipitate, although there is very little danger of precipitation taking place when you use an ointment of this form, because the oleate of mercury and sulphur do not constitute a black mass.

Besides that, she was given something else, perhaps as important as anything to prevent the recurrence of the acne, and this was a combination of bicarbonate of soda and pepsin for trouble of the digestive function which existed, and which I took to be one of the main causes of the acne. This consisted of the following :

R Pepsini porci, gr. v ;
Sodii bicarb., gr. x ;
Fiat pulvis, l.

Sig.—Take one such immediately after each meal.

For the palm of the hand and for the knee the same bichloride lotion as was used upon the face was ordered, and a dressing which would be antiseptic in character. There seemed to be more or less suppuration, and for this purpose carbolic acid ointment of a strength of five per cent. was ordered, and, as you see, the case has progressed very nicely. It looks well now with the exception of the knee, and, as the small ulcers which are present are not deep, hardly involving the thickness of the skin, and seem to be somewhat indolent, I will order a bichloride solution for a wash in order to arrest suppuration as much as possible, and a stimulating ointment, and for this purpose you will find that the oleate of mercury again is a very neat and efficacious remedy. Apply twice a day a one in five hundred solution of bichloride of mercury to those lesions of the knee, and an ointment composed as follows :

R Hydrarg. oleate (10 per cent.), ʒss ;
Adipis benzoati, ʒi. M.

Apply the same ointment very thin to the face at night in order to

get rid of those reddish infiltrations which you see are still about the malar eminences and which are the remains of the acne papules, and they will readily give way to the reducing properties of the oleate of mercury.

ICHTHYOSIS HYSTRIX.

The case which you have before you is rather an example of a deformity than of a disease. And this is a point to which I will allude later on in its proper place. The trouble before you is known as ichthyosis, and its name is derived from the Greek word signifying fish, on account of the fancied resemblance to the skin of a fish, which may be noted in the lighter cases. Before a proper appreciation of the case before you can be entertained it will be necessary to allude to the different varieties which are observed. In the first place, we have ichthyosis simplex, or simple ichthyosis, which is the form most commonly observed. This manifests itself in the form of a dryness of the integument, accompanied by desquamation. The scales are thin and whitish, showing plainly the furrows of the skin. A certain roughness exists, which is appreciated by the hand when it is passed over the affected area. Pretty well-marked lines are present in the patches of the disease, corresponding to the large furrows in the skin. The dryness which is present is due to the lack of secretory action on the part of the glands, both sudoriferous and fat-forming. The distribution may be either local or generalized. In the former case the localities in which we observe the trouble are most frequently the outer portions of the lower limbs in the neighborhood of the knee. In general, localized ichthyosis is generally located on the outer surfaces of the limbs and hips. When the trouble is general, the whole integumentary surface is involved, with the exception of the face, the palms, and the soles. These localities seem to be exempt from the process. The scalp, however, is not always free, and shares in the pretty free desquamation observed in the other portions, as well as in the lack of secretory action observed.

Ichthyosis hystrix, known also as the "porcupine disease" or "alligator skin," is a less common variety than the one just described. It manifests itself more universally than the ordinary form of ichthyosis, and it presents characters of a marked and even repulsive nature. As you may observe in the young man before you, the skin is thickened by heaped-up masses of horny material, derived from the upper layer of the skin. This thick layer is traversed by deep furrows, corresponding to those normal to the integument, and, as a result, the appearance presented is that of a number of elevated, truncated cones, which are

very rough to the touch and tightly adherent at the base. The furrows are widest and most strongly marked at the flexures of the joints, presenting a repulsive appearance (Figs. 1 and 2). As in the simple variety, the face is entirely free, as also the soles and palms. The case before us, however, has the backs of the hands and feet involved. If you examine the lesions closely, you will find a peculiarity not observable in ichthyosis simplex,—viz., the presence of inspissated sebum here and there and between the layers of the horny material composing the so-called “spines.” In some cases of ichthyosis hystrix the sebum forms a considerable portion of the total, which circumstance has earned for it the name of ichthyosis sebacea. The total absence of sweat, however, is a feature which may be noted.

A third variety, which is comparatively rare, is ichthyosis congenita. The trouble occurs rather in the form of plates, and is observed at birth, and is fully developed. It gives a hideous appearance to the child, and its peculiar distribution has led to calling the subject “harlequin foetus.” Children so afflicted are weak and puny, possess no bodily heat, and are incapable of suckling. If not still-born, they rarely, if ever, survive forty-eight hours, dying gradually of the wasting process which has seized upon them. All the cases so far reported have succumbed promptly, despite all the best-directed efforts employed to prolong life.

You will occasionally encounter the expression “ichthyosis nigricans,” more especially in the older writers. This refers to the dark and sometimes black appearance presented by ichthyosis. This change of color is sometimes greenish, instead of black, and it is largely attributable to the presence of extraneous matter, which becomes more or less incorporated with the sebum, and firmly attached to the horny cells of the epidermic thickening. However, it is by no means a constant accompaniment, although a pretty frequent one. It is certainly not such a modification as is deserving of a distinctive appellation, nor is it by any means an indication of the severity of the process.

The etiology of the process is one which is far from being satisfactorily explained. A consideration of all the observable factors which can possibly enter into its causation leaves many points in complete obscurity, so that very little can be positively laid down as indisputable. The consideration of a certain number of the appearances presented may incline us to the adoption of certain views on the subject, and I will briefly outline some, and draw a possible conclusion from them, and such a one as may seem to be rational. The absence of perspiration shows one of two things,—either a total absence of perspira-



**FIG. 1.—Ichthyosis hystrix.
Front view.**



**FIG. 2.—Ichthyosis hystrix.
Back view.**

tory glands or an arrest in their development. It is more than probable that both conditions exist, from the fact that we observe localized areas alone of ichthyosis in some cases. Another observed fact is that, clinically, ichthyosis is generally not congenital,—that is to say, it becomes noticeable after birth, develops and becomes intensified with growing years, until it attains a certain point in its progress. This is certainly an indication that the underlying cause is congenital when taken in connection with the fact that the ichthyosis occurs in those places in which perspiration has not occurred. If measures be taken to stimulate the undeveloped sweat-glands, it is found that the trouble improves. We might go on multiplying other reasons, but it seems very plain to me that the primary underlying cause is an arrest of development of the glandular structures of the skin, accompanied by deficient nerve-action, which, in its turn, brings about a hyperkeratosis or cornification of the upper layers of the rete mucosum. And, as we well know, many of the hypertrophies of the horny layer of the skin are of distinctly neurotic origin.

It may be stated, in addition to the foregoing, that it is well known that violent exercise or muscular exertion, galvanization, and certain drugs will produce sensible perspiration in the affected portions. This shows plainly that there is imperfect nerve-action. The nerves which are implicated undoubtedly belong to the sympathetic system, but it is a question to my mind whether it be the ganglia, trunks, or terminal filaments, or possibly all, which are concerned in the process. Be this as it may, there exist grounds for a strong presumption in favor of a neurological factor in the etiology of ichthyosis.

The pathology of this trouble has been the object of some study, although there are many conditions still existing which have not yet been completely elaborated. I am unable to advance my own findings from the fact that, while I have observed many of these cases, I have so far been unable to procure specimens. However, the majority of those who have made researches agree upon a certain number of points, which may be summarized about as follows: The horny layer is much hypertrophied, there being a large number of superimposed lamellæ; the papillæ are enlarged in the majority of cases and their blood-vessels are also greater in size. The corium is about normal. So far as the sebaceous and sweat-glands are concerned the greatest diversity of opinion exists, or rather the most different conditions have been found. In some cases there was observed a total absence of both sebaceous and sweat-glands. In others both these structures appeared normal. Certain observers record a rudimentary condition of the sebaceous glands,

and a sparse distribution of imperfectly-developed sweat-glands is described by some. Under such conditions it is difficult to determine a constant factor so far as these glands are concerned. The hair papillæ appear to be fairly developed in all cases. However, the entire subject is too indeterminate at the present time to devote any further attention to it.

The treatment of ichthyosis cannot be looked upon as very encouraging in its results. It may be laid down as a general rule that palliation of the trouble is the most that can be hoped for in the majority of cases. In the more superficial forms of ichthyosis simplex I have had some good successes by the following method: Internally, the patient was administered a nerve tonic composed of hypophosphites to which strychnine was added, and this continued for quite a long period of time. Externally, hot baths, taken every other day, *sapo viridis* being employed and vigorously applied by the aid of a stiff brush. The baths were to be taken in the morning, and immediately after the affected portion thoroughly anointed with the following:

R Acidi salicylici, gr. x;
Lanolini,
Adipis recent., aa ʒii. M.

This inunction to be repeated morning and evening, the ointment being applied thin, and the applications to be made without regard to the baths. The few cases of the character referred to which have been subjected to this plan of treatment have been apparently cured.

In the case before us and in others of a similar nature no such hopes can be held out. The utmost in our power, so far as is known up to the present, is the mitigation of the trouble. I would not counsel the abandonment of internal measures on this account, but would recommend very energetic external measures. The removal of the horny masses should be thorough, and for this purpose some keratolytic agent should be employed. As you are aware, caustic potassa is the best agent to accomplish the softening and separation of these horny masses, but it must be mitigated, and *sapo viridis* presents this desideratum in its best form. So, then, rub in the green soap liberally, and let it remain for twenty minutes or a half hour, and use hot water to remove the horny accumulations. If necessary, a dull knife may be used to hasten the process. Then the following ointment should be applied:

R Lanolini,
Adipis puriss., aa p. æ. M.

Turkish baths taken at intervals of about three days will aid to a certain degree. The application of the *sapo viridis* is to be governed, so far as its frequency is concerned, by the appearance of the skin. The ointment should be applied at least twice daily, in order to obtain that softness and suppleness of the skin which is sought after, and this condition of the integument will be obtained if the matter be strictly attended to. If it be neglected, however, the original condition will supervene.

It may be questioned why I have recommended the above ointment in preference to olive oil, oil of sweet almonds, or similar fatty agents. My reason is twofold,—a lanolin ointment is susceptible of being rubbed into the skin much better and permeating the upper layer of the epidermis. The ingredients are of animal origin, and are much more adapted to an animal structure than vegetable fats. *En passant*, it may be also mentioned that the formulæ given are such that rancidity will not easily set in.

From what has been said it will be easily gathered that the prognosis of ichthyosis is never of the most favorable. In the case of “harlequin foetus” it is always fatal in a short time. In the lightest forms, which are localized, some hopes may be held out. In ichthyosis *hystrix* the most which can be safely predicted is an appearance which will be improved to a considerable degree if strict attention be paid to treatment; otherwise it will return to its former condition. This is generally what happens, on account of the fact that patients tire of giving such constant care. Some who have markedly-developed cases exhibit themselves as “alligator” or “porcupine” men, and thus make their deformity a source of pecuniary profit.

ELEPHANTIASIS ARABUM; PURPURA SIMPLEX; PITYRIASIS ROSÉ.

CLINICAL LECTURE DELIVERED AT THE NEW YORK CITY HOSPITAL.

BY CHARLES W. ALLEN, M.D.,

Formerly Surgeon to the City Hospital, New York City, and Dermatologist to the Randall's Island Hospitals; Member of the New York Dermatological Society, the American Dermatological Association, etc.

GENTLEMEN,—Allied to fibroma, which was the subject last discussed, in the sense that it follows lymphatic obstruction and occasions hypertrophy, is the first case which I shall show you, one of

ELEPHANTIASIS ARABUM.

CASE I.—This young woman has been a patient of mine, off and on, for a number of years. The disease began, she tells us, when she was quite a young girl, and her mother suffered in the same way before her. The enlargement has been gradually progressive, with occasional acute exacerbations, due to attacks of erysipelas, in which I have attended her two or three times. An erysipelas of the patient's arm once resulted in the loss of portions of these three fingers and thumb, and you will observe that the hand and arm are enlarged in the same way as the legs, but not to so great a degree. These attacks of erysipelas furnish the only etiological clue, aside from the hereditary tendency mentioned. The *filaria sanguinis hominis* has been looked for in this case, but, as one would expect, not discovered. While this may be the cause of most cases in the tropics, in this country many other reasons for lymphatic obstruction may be found, of which recurrent erysipelas is one of the chief. I have seen more than one instance of elephantiasis of the feet, with papillary outgrowth as a result of lymphatic obstruction due to chronic eczema of the legs. I treated this patient for a time with electrolysis, which has given excellent results in some cases treated by Dr. Araujo, of Rio de Janeiro, and others. I obtained no



FIG. 1.—A case of *elephantiasis arabum*.

benefit, because the patient refused to keep off her feet and have the rubber bandage applied in the intervals. She seems now very desirous that something should be done. We will therefore put her to bed, bandage from the toes, and use the electrolytic needles again daily, but to hope for results this must be persisted in for a very long time. I have succeeded in a young girl, by means of the elastic pressure, elevation, rest, and massage, in bringing an elephantiasic leg back to almost the normal. This patient then disappeared, so I cannot tell you what the after-history was. In another case, where there was an ulcer into which both fists could be placed without at all filling the cavity, in a leg whose circumference was something like a yard around the calf, the patient begged off after the ulcer was healed and the enlargement was reduced about one-half, as she was a freak in a dime museum, and would lose her chances of a good salary if much more improvement took place. Remember, then, that these hypertrophic enlargements, whether of the leg, scrotum, arm, ear, lip, or other part, may have widely different causes for the stasis, lymphatic engorgement, or obstruction on which they depend; that something, often much, can be accomplished by treatment, if begun early and persisted in.

The next case I show you is one of

PURPURA SIMPLEX

in a young man. (Fig. 2.) It began, he tells us, about a week ago, first just above the ankles, and from here the bluish spots have gradually extended upward, until now small scattered macules are, as you see, creeping over the lower portion of the trunk. It is the patient's first attack. The only pains he tells us about are confined to the calves of the legs, and are not very severe. His statement that there has been no hemorrhage from any of the mucous membranes is verified in his good color and general good condition. The spots are, as you see, irregular in size, shape, and color, ranging from pin-head dots to areas half as large as the palm; some are typically round, while others have more or less angular outline, and in hue we get all the shades from pink through blue and purple to almost ashen tints. As I make pressure upon them you notice that the color does not disappear under the finger from any of them. On passing the hand over the surface you will note that there is absolutely no elevation to the lesions, and this is of importance in contradistinction from a purpura-like form of *erythema multiforme* which is often confounded with true purpuras. We ask the patient if there is any itching or other subjective sensation,

and his answer is, "None." If he did not see the eruption he would not know of its existence.

The only etiological factor we can discover is that he was working at bridge-building, and stood for a part of each day in the water, and that his clothes were wet much of the time. Now, we know that damp dwellings, cellar-quarters, and similar unhygienic surroundings favor the development of purpura, and such exposure as he tells us of would be most likely to cause some derangement of the system. The pains in the calves, which have now almost disappeared, could well have been due to a form of muscular rheumatism, but I would not call this a case of peliosis rheumatica. In the latter the joints are usually affected, and the skin lesions are more those of the erythema just mentioned. I would regard the muscular pains as due to the same agents—toxic, perhaps—which made possible the hemorrhages into the skin. This strong and otherwise well man is an illustration that the debilitated do not alone suffer from purpura. I would make a favorable prognosis in this particular case, though in general it must be guarded, for a seemingly benign purpura, which has almost or quite disappeared, will sometimes relapse after perhaps a week; a new crop of spots will come out, and this time bleeding will take place from one of the mucous surfaces, and death may occur either suddenly or after repeated losses of blood and progressive debility. Treatment must therefore be influenced by this prognostic possibility, and for that reason we will keep this man in bed, order a generous diet, and give him three times a day thirty drops of fluid extract of ergot, and an equal number of twenty-drop doses of iron tincture, with an interval between the two remedies. If hemorrhage should occur, we will give, in addition, ergotine hypodermically, full doses of turpentine in emulsion, etc.

I have picked out, as the last case to bring before you to-day, gentlemen, one which Kaposi would call *herpes tonsurans maculosus et squamosus*, which others have called *pityriasis maculata et circinata*, and which the original describer, Gibert, named

PITYRIASIS ROSEÆ.

This, Latinized into *rosea*, is the present usual designation, justified by the decidedly rosy hue that the early lesions which you see scattered over this man's chest and back present. The eruption began to appear, he tells us, three days ago, and you will note that a number of the finger-nail-sized spots are already beginning to desquamate, beginning in the centre and extending towards the periphery. Upon scraping the surface of other patches, fine branny scales are loosened. If these



FIG. 2.—Purpura simplex.

are examined microscopically, various micro-organisms are found in them, but none that one can yet say has any etiological significance, and surely no fungus which can identify the disease with disseminated ringworm. Hebra named the affection in accordance with his belief in its ringworm nature. It surely suggests trichophytosis in the form, peripheral extension, central desquamation, and at times slightly elevated border, with return to normal of the area of skin included by the ovoid ring. This central part is usually tawny, dusky, or distinctly pigmented. A point, however, against its being of parasitic nature at all is the fact that while in some cases it will run its course untreated within a few weeks, the most vigorous use of strong parasiticide remedies will not prevent other cases from running into the months. Again, I have seen the eruption appear upon the whole surface within a few days, and after a few days more so completely cover the skin that scarcely a square inch remained free. The particular case to which I refer was entirely well in five weeks. This hardly agrees with what we know of the ringworm forms. Some of my other reasons for not believing it a surface parasitic or contagious disease are that I have seen hemorrhagic purpura-like lesions associated with the pityriasis spots in two patients, giving rather the impression of lymphatic dissemination of some poison. Furthermore, in almost all whom I have treated there has been digestive derangement, either acute, and similar to those usually found with urticaria, or chronic, with acute exacerbations at the time of the eruption.

The disease is very prone to recur, and our patient tells us he had his first attack about 1884, since which time it has come back five times, always in the winter.

As he stands before you, no bright spots are to be seen below the hips, though there are some over the shoulders and outer surface of the arms. Upon separating the thighs, however, we see in the crotch on the left side an oval patch larger than any upon the trunk, together with a number of newer, smaller, and more rosy spots surrounding it. This region is itchy. The patient says it itched before any spots showed upon the body, and he thinks the eruption began here. I think so, too, gentlemen, and for the reason that I have a number of times seen what my friend Dr. Brocq, in Paris, has described as the "parent patch." I have seen this primary lesion spread at the periphery until nearly the whole upper chest-wall on one side had been involved, and then spread over the shoulder and resist all treatment, so that several months were required for a cure. This first spot may precede others by a week or more. The treatment requires a combination of

external and internal measures. For local use the following has given me the best results :

R Resorcini (Merck), gr. x to xxx ;
Solve et adde
Lanolini, ℥ii ;
Ung. aq. ros., q. s. ad ℥i. M.
Ft. ung. exactiss.
Sig.—Apply twice daily.

Internally, ichthyol in doses of two to four grains has seemed to improve the condition of the stomach, but each case must be treated according to the condition found. In one case, with acidity, the rhubarb and soda mixture acted well. The diet must be regulated, and usually those things which we exclude in so-called dyspepsia can safely be omitted here. The bowels, too, must be regulated. Magnesium sulphate in frequent small doses, or combined with iron and sulphuric acid according to the old Philadelphia Dispensary formula, will here do good service.

SYPHILODERM: PAPULAR, ERYTHEMATOUS, AND HEREDITARY.

CLINICAL LECTURE DELIVERED AT THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF DENVER.

BY JAMES M. BLAINE, M.D.,

Professor of Dermatology in the Medical Department of the University of Colorado,
Denver, Colorado.

LADIES AND GENTLEMEN,—I wish to call your attention to-day to some of the different forms of skin manifestations in syphilis. Syphilis, as you know, is divided into three stages,—primary, secondary, and tertiary. If allowed to go untreated or if improperly treated it will pass through all of these three stages, but if successfully treated there is no necessity of its passing beyond the second stage.

The initial lesion, as you know, consists in the hard or Hunterian chancre, located on some part of the body which has been exposed to contagion. Some physicians confidently base their diagnosis on the initial sore and begin treatment at once, which has the effect of modifying and in some cases effectually preventing the secondary eruptions.

This, at the present day, is not considered good practice, as it tends to create doubt in the mind of the patient as to your diagnosis, with the effect that he may, after a short time, stop treatment, and be apparently well for years, when all of a sudden the disease will break out in what are called the late secondaries or even in the tertiary form, which, of course, are always more difficult to treat. In the mean time the patient may have married and transmitted countless miseries to innocent offspring.

The plan of procedure that is recognized now as being the most rational is to palliate the mind of the patient and wait for the development of the secondary symptoms. This assures both patient and physician that the diagnosis has been correctly made, and without this it is impossible to hold some patients throughout the time re-

quired to effect a cure. The initial sore is often so insignificant in appearance, and the tendency of the patient is to try to convince himself against the diagnosis of syphilis, that unless you fortify your diagnosis by waiting for developments, you will very often fail in holding the confidence of your patient. In the diagnosis of syphilitic skin affections you must not depend too much on the history as given by the patient, for it is peculiar to this class of patients to deny having been infected; moreover, in some patients the initial lesion may have been actually overlooked.

The only use to be made of subjective symptoms in these cases is for the purpose of confirming your diagnosis, but even then, if the patient should see fit to deny the primary infection, you will be compelled to depend on the appearance of the lesions for your diagnosis.

CASE I.—The first patient I show you to-day you will recognize, having seen her before. You will recollect that on her first visit to the dispensary I made the diagnosis of syphilis, but was unable to obtain any history of infection. Since that time, however, she has given the subject careful consideration, and to-day I will read you the history, but, as I remarked a few moments ago, the history in most cases is absolutely worthless, and this case is no exception.

Mrs. M., aged twenty-eight; general health good; family history good. About four months ago noticed a sore on lower lip, which she now believes was contracted by kissing a niece who was suffering from hereditary syphilis. About three months ago the eruption began to appear, which, as you now see, covers the entire body from the crown of her head to the soles of her feet. This eruption has been practically stationary for all this time, as she has not been treated for it, so that you now see one of the most beautiful cases of papular syphilide that I could possibly show you, or, to be more exact, perhaps I had better call it the *flat papular* variety.

In looking at it you observe the lesions are discrete and situated at regular intervals. They are hard, elevated, and flat. They are perfectly dry, and there are no subjective symptoms to cause any discomfort to the patient. When the eruption began, it manifested itself first on the shoulders and back and is still more pronounced in those regions, but as three months have elapsed it now covers the entire body. The color, as you see, is what is described as "coppery" or "ham color," and is characteristic of syphiloderm. If you are not color-blind in diagnosing delicate tints, you will soon learn to recognize this peculiar shade which you will not find in any other disease.

The next diagnostic feature I wish to call your attention to is the

enlargement of the lymphatic glands. This is not necessarily characteristic of syphilis, as it may occur in other diseases, such as pustular affections, traumatism, etc. In these conditions, however, the enlarged lymphatics are those situated nearest the seat of the disorder. Here you find the cervical glands enlarged, particularly those on the posterior portion of the neck, along the border of the sterno-cleido-mastoid muscle. Another enlarged gland which I am pleased to be able to show you in this case is the epitrochlear. By placing your fingers a short distance above the elbow on the inside you may be able to distinguish a substance about the size of a small pea. This is a point I particularly wish you to note, for while you will not find it in every case of syphilis, yet when you do find it (unless in cases of injury near the elbow), it is absolutely pathognomonic of syphilis.

Of course the inguinal, axillary, and other glands are also enlarged, but these are not of so much importance in the diagnosis as the ones I have just shown you, for the reason that they are so frequently enlarged in other diseases.

Now, as regards the differential diagnosis in this case, what other diseases does this resemble?

The one with which it is most likely to be confounded, and, indeed, with which it was confounded before coming here, is eczema papulosum. If you will remember, when lecturing on eczema I pointed out to you as some of the principal differences between the two diseases that eczema, as a rule, is limited to a much smaller area than syphilis, eczema is more acute than syphilis, the eruption is not so deeply seated and tends more to coalesce. If the patient is trustworthy you may gain some information from the history, and the most pronounced subjective symptoms in eczema, as you know, are itching and formication, which in syphilis is slight or entirely wanting. Papular syphilis might also be mistaken for lichen. In lichen planus you will find small papules on the wrists and ankles, while on the abdomen they are large, flat, quadrilateral, and presenting in some cases almost as symmetrical an arrangement as mosaic art work. In lichen scrofulosus you will find the lesions on the chest, back, and abdomen. They are small, situated around the hair-follicles, are light-red or fawn color, and there are other signs of scrofula found on the patient. In cases where you are unable to satisfy yourself as to the diagnosis of syphilis, you can always have recourse to the crucial or therapeutic test.

Now in regard to the treatment of this case. In a person whose general health is good, the sheet-anchor in these cases is mercury in some form. Every man praises the bridge that carries him safely over,

so that you will find different men using different preparations, such as the protiodide, bichloride, biniodide, etc.

In a robust patient that can be seen often, I prefer to use during the time of eruption the gray powder (*hydrargyrum cum creta*). This preparation, of course, is prone to produce pyalism, but I instruct the patients to snap their teeth together every day, and if soreness supervenes to report to me at once. By the use of this preparation I fancy I am able to cause the disappearance of the eruption sooner than by any other. After the eruption has disappeared, I then make use of the protiodide, alternating every third month with the iodide of potassium.

Mercury does not destroy the syphilitic virus, but renders the soil unfit for propagation. The action of iodide of potassium is not clearly understood, but it is probable that it acts by reason of its power to eliminate ptomaines and cause resolution of the exudations. If water is freely used more mercury may be given, as the water simply passes the mercury through the system more rapidly. This is clearly proved by the excellent results obtained at the Hot Springs, where patients are urged to consume large quantities of water.

The prognosis in syphilis is now considered to be favorable, provided the patient has a fairly good constitution. I shall advise this patient to remain under treatment for at least two and one-half or three years, when, if there are no symptoms manifest, she may safely infer that she is free from disease. Some syphilographers assert that they have seen cases of undoubted reinfection, but, as a rule, there is immunity against future attacks.

This patient has asked me a very important question, and I shall answer it here for her benefit and yours. Being a married woman she very naturally asks what are the dangers to her husband and her possible offspring. I answer that so far as infection is concerned, all secondary lesions, blood, and abnormal excretions are infectious, while normal secretions are not. Therefore, if she were not already married, I would advise her not to marry until after the third or fourth year.

In regard to possible offspring, I would say that the danger of transmission is said to extend from five to six years from the date of infection.

CASE II.—Our next case is a beautiful type of the erythematous syphiloderm. This, as you know, is the earliest of the secondaries, coming on in from six to eight weeks after infection. This patient gives a history of having had a hard chancre eight weeks ago, and, as the eruption has been out for one week, this would make the time to

be just seven weeks from the initial lesion till the appearance of the eruption. You will note that these erythematous patches are situated on the abdomen, on the back, and on the flexor surfaces of the forearms. It is fortunate for this patient that she has developed the erythematous syphilide, for as there is no thickening of the integument, as in the other varieties, the effects of treatment will be manifest sooner, and in a very short time the eruption will have disappeared. This does not mean that the course of treatment as a whole will be lessened, but that the patient will be the sooner relieved of the chagrin occasioned by such a noticeable eruption. You will notice that the color is not so characteristic as in the other case I have just shown you. The color in this case may be called a pale red. This is due to the fact that in all erythemas we have the color of the blood showing through the epidermis owing to the distention of the capillaries. To cause the color to disappear I have only to make pressure on the macules which causes the blood temporarily to recede, which, as you know, would not be the case if an extravasation had taken place, as in the former case.

She gives a history of having had enlarged glands in the inguinal region, and you will be able to detect some engorgement in the glands at the back of the neck. She also tells us that she has some pains in the limbs with slight headache, particularly at night, has had some sore throat, but no falling of the hair. These subjective symptoms which she gives, taken in connection with the eruption, are sufficient to warrant a diagnosis of syphilis; but supposing the patient were untrustworthy, or refused to tell her symptoms, we would still be justified in making a diagnosis from the objective symptoms. The position and color of the eruption, taken together with the enlarged glands, point only to one conclusion.

As this patient lives at some distance from the dispensary and cannot be seen very often, we will put her on the protiodide of mercury, as there is less danger of ptyalism than from the gray powder. We will begin with one-sixth of a grain three times daily for the first month, and if this dose does not cause any diarrhoea or other unpleasant symptoms we will increase to one-fourth grain for the next month. Then, as in the former case, we will alternate with potassium iodide every third month.

As to the prognosis. The eruption should all disappear in from four to six weeks, but the length of time necessary for a complete cure will be the same as in the other case. I might also warn you that in some cases of erythematous syphiloderm the eruption may

change to the papular or even the pustular variety, but as this case is well nourished and otherwise healthy we do not expect such complications.

CASE III.—The next and last case I have to show you in this line, this morning, is one that should prove very instructive to you. This little child, now six months old, has had the great misfortune to be born into the world with hereditary syphilis.

For a history of this case we are obliged to antedate its conception for a period of two and one-half years. Three years ago, the mother tells us, the father of this little sufferer contracted a hard chancre. He was treated in the County Hospital for a period of six weeks, or until the initial lesion had disappeared. Since that time no eruptions have appeared, so that he considered himself as being cured; but here we have a silent witness to the truth of my former statement that the early treatment has only masked the symptoms, while the true disease still lurks in the system. As another confirmation of this, I might also add that recently he has been taken to the County Hospital suffering from epileptiform attacks, which my friend, Dr. Eskridge, informs me are due to a syphilitic lesion in the brain.

Hereditary infection from the father is known as sperm infection, and it has been denied by some syphilographers that it is possible to transmit infection by the father without first infecting the mother, but Colles has laid down the law that the child inherits the poison from the father, and through the placental circulation the mother becomes immunized, and is never infected by the mouth of the offspring, whereas, if another woman should place the child to her breast she would become infected.

This mother, you will observe, appears to be perfectly healthy, and gives no history of having had any syphilitic manifestations. I might also inform you that she has another child about two years of age, which was also born syphilitic, but was treated for one year, and now shows no eruption. The eruption on this little patient, you notice, is limited to the nates and soles of the feet. This is the most common site in hereditary cases. The eruption is scaly and moist on the nates, owing to the character of the clothing worn at this period of life, while on the feet the scales are dry.

The skin of the patient is about as characteristic as the eruption. You will notice it is yellowish, wrinkled in some places and tightly drawn in others, giving to the little child an aged appearance. You will also find most of the lymphatics involved.

I wish to call your attention particularly to another symptom.

The child has had snuffles ever since birth. This symptom is rarely absent in children born with syphilis.

In regard to the diagnosis you would not be likely to mistake this condition for any other, especially with so clear a history, but, as I remarked before, I wish you to learn to recognize syphilis by its appearance so as not to be misled by the statements of the patient.

In eczema so extensive as this you would expect to find crusts formed of the dried exudate, but here you find only scales which are made of dead epidermis exfoliated for lack of nutrition. In eczema you would have severe itching and would not expect to find it on the soles or palms. In eczema the child would not necessarily be so emaciated, and, indeed, you will find eczematous children, as a rule, are well nourished. I have seen ecthyma in this situation mistaken for pustular syphilide, but we have no evidences of pus here, so need not mistake it for ecthyma.

There are three plans by which we could medicate this child: first, by mercurializing the mother and thus having its natural food medicated; second, by direct medication *per os*; third, by inunction. As the supply of mother's milk is quite small in this case, we will begin by giving the child hydrargyrum cum creta in half-grain doses three times daily, and also apply to the eruption an ointment containing twenty grains of calomel to the ounce. Remember in these cases where you wish absorption to use an animal fat for an ointment base, as the petroleum products, so much used, are not capable of any absorption; moreover, they prevent the absorption of the medicament. Syphilitic children tolerate large doses of mercury; so we may as time progresses increase the size of the dose.

The prognosis in these cases of hereditary syphilis is very grave: fully one-third succumb ere they reach the years of maturity. However, as the paternal cases are not so severe as the maternal, we may hope for better results in this case than we would be warranted in doing had the child inherited the disease from its mother.

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